

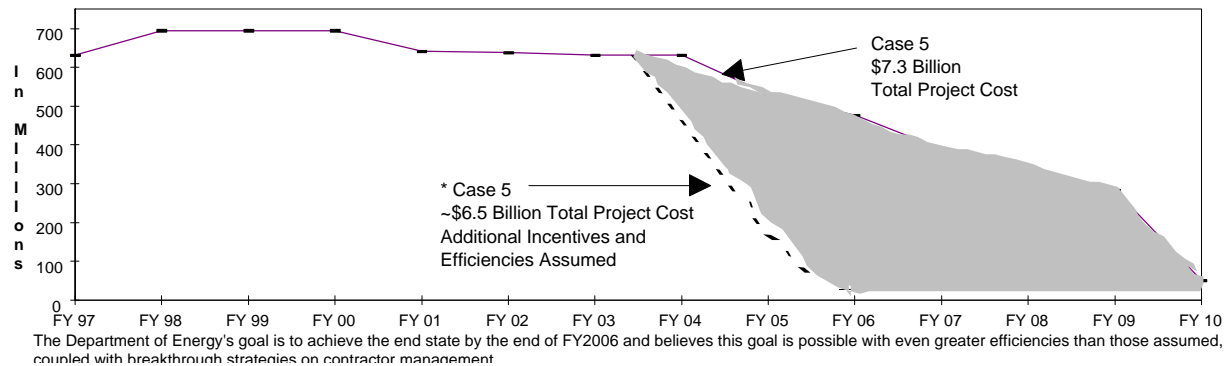
## **ABOUT THE COVER:**

The two photos on the cover show a comparison between the current view of the Site and a conceptual view of the end state of the Site. The end state photo shows that the majority of Site facilities would be demolished with the exception of the nine buildings proposed for economic conversion and reuse. The photo also shows the outlines of four capped areas which would cover an old landfill and some remaining demolition debris and low-level contamination. The caps would prevent water infiltration and mitigate contaminant migration.

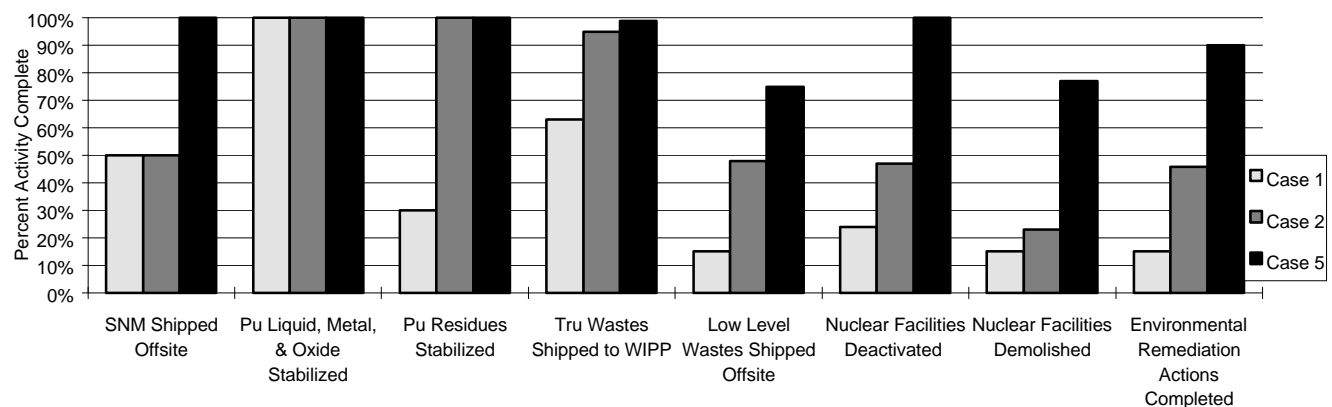
## **ACCELERATING CLEANUP: FOCUS ON 2006** **ROCKY FLATS DISCUSSION DRAFT ABSTRACT**

The Rocky Flats Discussion Draft (Discussion Draft) describes how Rocky Flats can achieve accelerated risk reduction and cleanup of the Site, reaching an eventual “end state” which will allow for the reuse of the Site for open space or commercial development. The fundamental purpose of the Discussion Draft is to serve as a strategic planning document which analyzes the impacts of many interrelated events through the development of five scenarios or “cases”. The major distinctions between the five cases result from differences in maximum annual Site funding assumed to be available and the decision to build or not to build an onsite, interim plutonium storage vault (ISV). These distinctions affect the period of time it takes to reach the end state and the relative speed with which risk reduction occurs. The analysis of the five Discussion Draft cases shows that early, additional annual Site funding combined with a decision not to build an ISV coupled with early offsite shipment of special nuclear materials (SNM), has profound impacts on the time and total cost required to reach the Site end state.

Our estimates show that increasing early year funding beginning in FY1998 (Case 5) allows Rocky Flats to reach the end state by the end of FY2009 at a cost of \$7.3 billion (see chart below). With the early year funding increase, we can accelerate offsite SNM shipments; radioactive wastes can be shipped offsite faster; site facilities can be demolished sooner--all of which contribute to reducing mortgage costs, and thus create a “cascading effect” of allowing ever increasing funding for site closure activities beyond routine facility operations and maintenance activities.



A comparison of key closure project risk reduction activities shows that at the end of FY2006, the effects of early, additional investment are clear in the completion of key Site closure activities:



Higher, up front funding is the single most critical factor in keeping both total project costs and risks at the lowest possible level. This additional early funding permits acceleration of critical path work to get the SNM offsite, thus reducing mortgage costs and risk. Case 5 then, is the most attractive alternative, since it enables the acceleration of the critical path work, meets regulatory compliance commitments, has the lowest lifecycle cost (\$7.3B), and comes closest to achieving the end state by 2006.

Rocky Flats has committed to improving efficiencies through reengineering efforts, benchmarking to best-in-class commercial standards, developing innovative approaches to incentivize the contractor and implementing new technologies that result in cost and schedule improvement. DOE Headquarters must continue working solutions to the enabling national issues embodied in the Rocky Flats Discussion Draft assumptions that are beyond the control of the Site. We anticipate these efforts will enable the Site to achieve its goal of reaching the end state by 2006 at or near the Case 5 funding level.

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# ACCELERATING CLEANUP: FOCUS ON 2006

## DISCUSSION DRAFT

### EXECUTIVE SUMMARY

#### INTRODUCTION

The Rocky Flats Environmental Technology Site Discussion Draft (Discussion Draft) describes how the Rocky Flats Environmental Technology Site (Rocky Flats or Site) can achieve accelerated risk reduction and cleanup of the Site, permitting the eventual reuse of the Site for open space or commercial development. The Discussion Draft's fundamental purpose is to serve as a strategic planning document which analyzes impacts of many interrelated events, and serves as a focal point for other planning and budgeting efforts. This Discussion Draft is one of a series of planning documents that will be produced, eventually resulting in the Site's 2006 Plan.

A reasonable and foreseeable future end state for the Site as described in the Vision and Preamble to the Rocky Flats Cleanup Agreement (RFCA) and this Discussion Draft is one in which:

- All Special Nuclear Materials are shipped to an offsite repository
- All radioactive waste generated from cleanup is shipped offsite for disposal
- All facilities are demolished except those facilities which are designated for commercial reuse
- Environmental remediation of contaminated areas is conducted to the extent that future land uses are enabled and downstream water supplies are protected
- Land use enabled by cleanup levels would permit open space uses of the Site's buffer zone and either open space or industrial reuse of the Site's industrial area. The nature of open space use has yet to be determined through consultation with local governments and stakeholders.

This Discussion Draft contains detailed evaluations of five scenarios, called "Cases", for achieving this end state. The major distinctions between the five cases result from differences in the maximum annual Site funding assumed available, and whether or not the Special Nuclear Material (SNM) is shipped offsite early, both of which affect the period of time it takes to reach the end state and the relative speed with which risk reduction occurs.

The analysis performed strongly supports the value of Case 5 for reaching the DOE, EM vision and Site's end state goals. Case 5 assumes early, increased funding coupled with early, aggressive offsite shipment of SNM. Case 5 demonstrates how at least \$900 million can be saved and the end state reached five years sooner than any of the other cases evaluated. Further, Case 5 achieves over 90 percent accomplishment of all major project metrics by the end of FY2006. Case 5 also provides the best performance relative to risk reduction during the initial ten year closure period. Additionally, it is the only case which is fully compliant with the recently negotiated RFCA milestones.

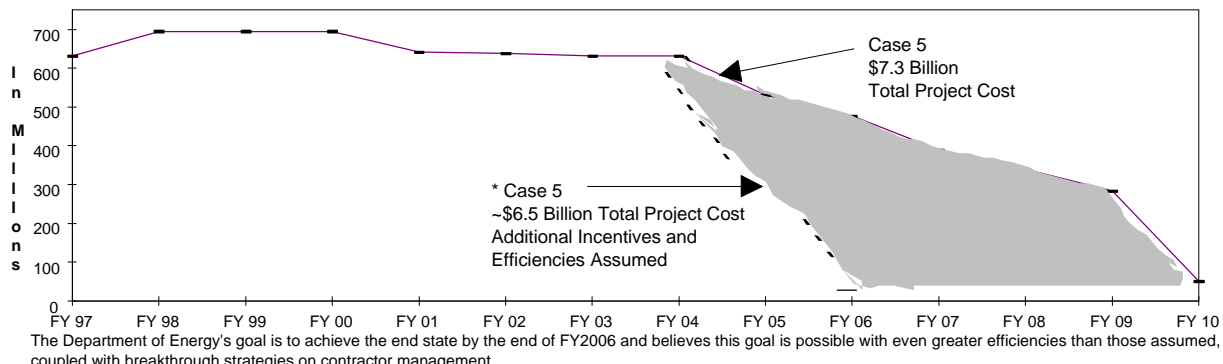


Figure ES-0

## **DOE's Goal to Achieve the End State by FY2006**

With the current funding projections, the Site model (see Figure ES-0) shows that the Site will essentially complete its closure activities by FY2009 at an estimated cost of approximately \$7.3 billion. The Site, however, will commit to a goal of completing closure in ten years (by FY2006) if certain funding considerations are favorable during the first three years. These favorable considerations would include: (1) either availability of accelerated closure funds in lieu of privatization funds or unrestricted use of privatization funds, (2) accelerated closure fund availability, and (3) other mechanisms to increase available funds above the \$6.0 billion EM target for Fiscal Years 1998, 1999, and 2000. It is expected that the viability of these funding considerations will become clear by publication of the Draft 2006 Plan in October 1997, and at the same time, make clear the viability of the 2006 completion commitment.

## **OPERATIONS/FIELD OFFICE OVERVIEW**

Rocky Flats occupies an area of approximately 6,200 acres in northern Jefferson County, Colorado, approximately 15 miles northwest of Denver. From its original construction in the early 1950s, the Site has developed into an industrial complex consisting of more than 700 facilities and structures. The main production and support facilities are located near the center of the Site and occupy approximately 385 acres.

Following cessation of production activities, the Site was faced with the challenging task of cleanup. Over the years, many of the facilities and much of the equipment used for the production of nuclear and nonnuclear weapons components were contaminated with radioactive materials and other hazardous materials. Further, the equipment that provides the safety envelopes for the nuclear buildings and the utility support systems are deteriorating and becoming increasingly unreliable with the passage of time.

The longer these systems are required to be maintained in an operational state, the higher the cost of repair and replacement. Additionally, as a result of past disposal practices and planned and unplanned events, there have been releases, both wind borne and water borne, of radiological materials and hazardous waste into the environment, including portions of Rocky Flats and surrounding lands.

The greatest liability at the Site is the potential risk to health and safety posed by the presence of large amounts of SNM in various forms. Rocky Flats currently stores approximately 12.9 metric tons of plutonium and over 6 metric tons of highly enriched uranium. Much of this material has been stored in temporary packaging since 1989, following the abrupt cessation of nuclear materials production activities. It is this liability that is the early focus of work in all cases described in this version of the Discussion Draft.

To focus management attention on accomplishing measurable progress toward the Rocky Flats end state, all cleanup and environmental remediation work has been organized into 32 individual but well integrated projects. Management responsibility for each project is assigned to a Project Manager who is accountable for achieving clearly defined cost, schedule, and performance objectives. The project approach reinforces the commitment to clean up Rocky Flats with a measurable and cost effective program.

Project Baseline Summaries (PBSs), which were submitted on February 28, 1997, for Case 1 and Case 2 which were developed as reference cases, were used to develop this Site's Discussion Draft. A PBS contains detailed project information that will serve as the major source of data for DOE Headquarters.



The information in the PBS includes the scope of work, costs, schedules, metrics, milestones, compliance drivers, budget justifications, narrative descriptions, and other information for each of the projects. A total of 64 PBS spreadsheets were completed (32 projects for each of the two cases). PBSs were not required to be developed for Cases 3, 4, and 5. Enhanced performance targets will be incorporated into future revisions to the PBSs.

## SITE 2006 STATUS AND ASSOCIATED FUNDING PROFILE

### Key Assumptions

The development of the Discussion Draft required that a number of key assumptions be made in order to construct the five cases that make up the Discussion Draft. Table ES-1 provides a description of the key specific assumptions used for the five cases.

**Table ES-1**  
**Key Assumptions**

KEY ASSUMPTIONS	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Fiscal Year (FY) maximum 1998 EM and DP Funding Level (includes privatization funds*)	\$642.1 M	\$642.1 M	\$694.2 M	\$642.1 M	\$694.2 M
FY1999 maximum EM and DP Funding Level (includes privatization funds)	\$611.1 M	\$659.9 M	\$694.2 M	\$659.9 M	\$694.2 M
FY2000 maximum EM and DP Funding Level (no privatization funds available)	\$581.1 M	\$629.9 M	\$694.2 M	\$629.9 M	\$694.2 M
FY2001 and outyear maximum EM and DP Funding Level (no privatization funds available)	\$581.1 M	\$629.9 M	\$694.2 M	\$629.9 M	\$644.2 M
A new interim onsite plutonium storage facility is built	yes	yes	yes	no	no
WIPP will open in FY1998 and will receive all Rocky Flats' TRU waste	yes	yes	yes	yes	yes
DOE or commercial facilities will receive all Rocky Flats' low-level and low-level mixed waste	yes	yes	yes	yes	yes
All Rocky Flats' facilities will be demolished, except for nine facilities designated for reuse	yes	yes	yes	yes	yes
Future environmental remediation will be based on current interim soil action levels for radionuclides	yes	yes	yes	yes	yes
Eighty-nine environmental remediation actions will be required per RFCA	yes	yes	yes	yes	yes
Infrastructure and management costs will decrease by an average of 5% per year due to improved efficiencies	somewhat	yes	yes	yes	yes**

\* Case 5 assumes unrestricted privatization funds

\*\* Case 5 assumes even greater efficiencies in Site management costs compared with the other cases

### Accomplishments to Date

Although the Discussion Draft is still a draft, many activities focused toward achieving the end state have been ongoing. Table ES-2 highlights some of these accomplishments.

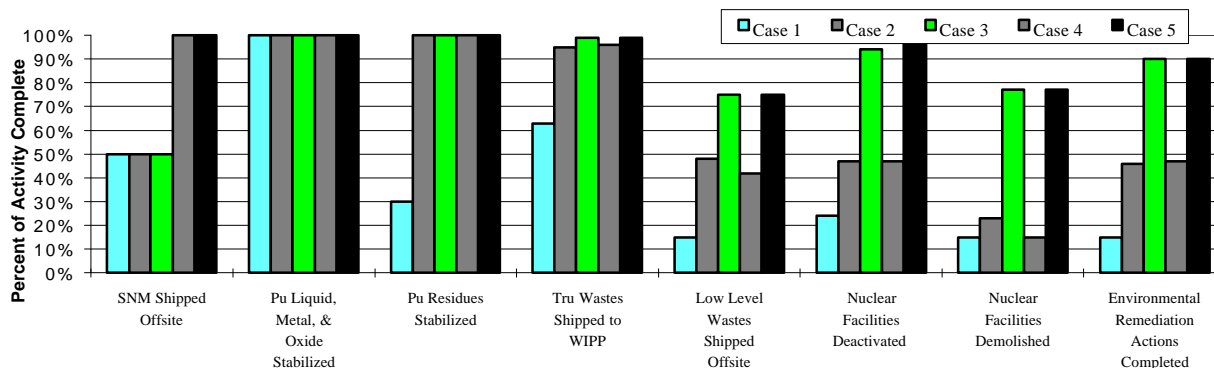
**Table ES-2**  
**Accomplishments to Date Toward Achieving the Site End State**

Activity	Status as of January 31, 1997
Drain Plutonium liquids in B371 and B771 and Highly Enriched Uranium Nitrate in B886	4,890 of 32,600 liters drained
Stabilize and repackage Plutonium residues	700kg of 106,000 kg completed
Remediate Environmental Sites	19 of 89 sites remediated
Obtain No Further Action (NFA) decision for ER sites	28 of 137 NFA decisions approved
Ship low-level mixed waste for disposal	1,551m <sup>3</sup> of 73,000m <sup>3</sup> shipped
Ship low-level waste for disposal	251m <sup>3</sup> of 65,000m <sup>3</sup> shipped
Deactivate Buildings and Facilities	3,260sf of 1,535,213sf deactivated
Demolish Buildings and Facilities	13 of 769 facilities demolished

## Status of Site at the end of FY2006

The evaluation of the five cases reveals that only one case, Case 5, comes close to achieving the end state by 2006. Under Case 5, all SNM is stabilized and shipped offsite, almost all radioactive waste is shipped offsite, and facility demolition and environmental cleanup is nearly complete. Although Case 1 achieves some significant SNM stabilization by 2006, only moderate progress is made in stabilizing plutonium residues, and little progress is made shipping radioactive waste offsite, demolishing facilities, and performing environmental cleanup activities. Case 2 achieves stabilization of the Site's SNM, but only moderate progress is made in shipping radioactive waste offsite and performing environmental cleanup, and little progress is made toward demolishing facilities within ten years. Case 3 achieves significant progress in SNM stabilization, shipment of radioactive waste offsite, and performing environmental cleanup activities. However, only moderate progress is made early in shipping SNM offsite. Case 4 achieves similar progress as in Case 2 by 2006, with one exception; all SNM is shipped offsite by 2006.

Figure ES-1 below provides a case by case summary description of the status of the Site at the end of FY2006, evaluated by key activities.



**Figure ES-1**  
**Status of Key Closure Activities at the End of FY2006**

## Project Costs and Schedules

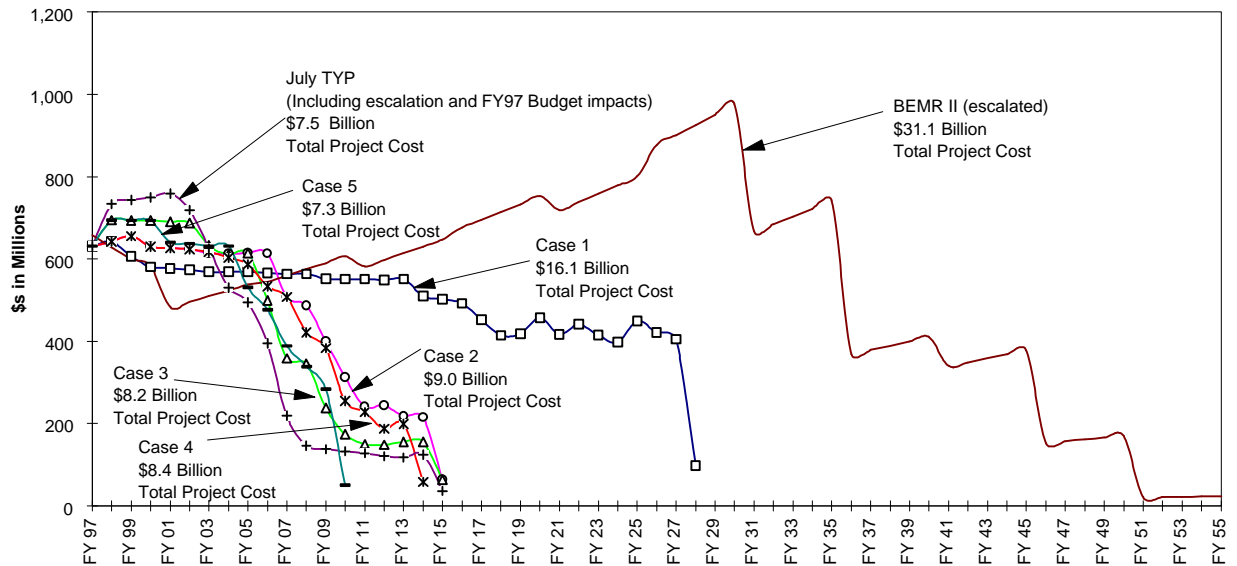
The percent complete at the end of FY2006 and total project costs and schedules to achieve the end state are shown in Table ES-3 for the five cases.

**Table ES-3**  
**Summary of Cost and Schedule**

Case	Percent Complete at End of FY2006	Cost to Achieve End State	Date End State Achieved
1	30%	\$16.1B	FY2027
2	65%	\$9.0B	FY2014
3	85%	\$8.2B	FY2014
4	70%	\$8.4B	FY2013
5	90%	\$7.3B	FY2009

## Comparison of Recent Planning Efforts

The scope of this Discussion Draft is virtually the same as that employed in the July 1996 Rocky Flats Draft 1.0 Ten Year Plan (TYP I or July TYP). Both documents have benefited greatly from the considerable clarity on the ultimate end state that was facilitated by the signing of the RFCA and earlier planning efforts. In particular, when comparison funding profiles (See Figure ES-2) for TYP I, the Discussion Draft and the Department of Energy's (DOE) previous planning effort embodied in the Baseline Environmental Management Report (BEMR) (March 1996) are plotted together, significant differences are noted.



**Figure ES-2**  
**TYP I, Discussion Draft, and BEMR Comparison**

The previous planning efforts (i.e., July TYP and BEMR) have differing assumptions on treatment of escalation (inflation), support costs, and mortgage costs. Each successive planning effort has improved understanding of the scope, schedules, and detailed basis for the cost estimates. Thus, we see the Discussion Draft Case 5 as being the most accurate, as well as providing the best achievement of DOE goals.

## **PATH FORWARD/SITE-SPECIFIC STRATEGIES**

### General Site Strategies

In developing the Rocky Flats' Discussion Draft, a number of strategies, developed over the past year and a half by the Site and its stakeholders, were used in the construction of scope, work logic, and cost and schedule estimating. These strategies embody the seven guiding principles contained in Assistant Secretary Alm's December 1996 *Guidance on the Ten Year Plan* and the RFCA. The major strategies employed in the Rocky Flats' Discussion Draft are:

- Maintain the Site's safety envelope ensuring the continued safety of Site workers, the public, and the environment during cleanup activities.
- Eliminate highest priority risks first. High priority risk activities primarily involve stabilization, consolidation, interim storage, and offsite shipment of SNM.

- Reduce the Site's high nuclear facility baseline costs by accelerating deactivation of these facilities through expedited stabilization and removal of SNM.
- Rely on other DOE and commercial sites to assist Rocky Flats in the early removal of the Site's SNM, transuranic, and low-level wastes.
- Demolish Site facilities and infrastructure to eliminate future funding and safety liabilities, ongoing maintenance and surveillance, and residual radioactive material management.
- Clean up environmentally contaminated areas to the extent that sources of contamination which pose a significant risk are mitigated and controlled. Site cleanup is performed to the extent necessary to support the land uses described in RFCA and to ensure that downstream water quality standards are met.
- Reduce infrastructure and management costs at a steady pace throughout the life of the cleanup project.
- Comply with all applicable laws, regulations, and agreements.

The Discussion Draft was developed using a qualitative prioritization system as a tool to support Site decisions on project sequencing and funding. The Site is using a prioritization method which considers risk an integral part of decision making. The prioritization system being employed involves looking at the activities within a particular project and making a determination whether the activities are classified as Minimum Operating Level (MOL) activities (i.e., activities that provide for the maintenance of the Site in a safe and compliant state). MOL activities were preferentially funded over all other activities. Activities that were not MOL activities were then prioritized based on their relative ability to achieve, among other things, risk reduction and mortgage reduction.

#### Case Specific Strategies

The following strategies were employed in the development of the five cases based on the general Site strategies and key assumptions described in Table ES-1.

##### *Case 1*

- Provide facility safety envelopes commensurate with the lengthy operational period
- Emphasize mortgage reduction to allow additional risk reduction in later years
- Perform stabilization of high risk plutonium liquids, metals, and oxides preferentially
- Defer environmental cleanup, plutonium residue stabilization, major facility demolition, and offsite radioactive waste shipment until higher risk plutonium risk reduction activities are complete

##### *Case 2*

- Provide facility safety envelopes commensurate with operational period
- Balance mortgage reduction activities with plutonium risk reduction activities
- Perform stabilization of high risk plutonium liquids, metals, oxides, and residues preferentially
- Perform lower risk environmental cleanup, facility demolition, and offsite radioactive waste shipment commensurate with funding availability

##### *Case 3*

- Provide facility safety envelopes commensurate with operational period

- Balance mortgage reduction activities with accelerated plutonium risk reduction activities
- Perform accelerated stabilization of high risk plutonium liquids, metal, oxides, and residues
- Perform lower risk environmental cleanup, facility demolition, and offsite radioactive waste shipment commensurate with funding availability

#### Case 4

- Provide facility safety envelopes commensurate with operational period
- Balance mortgage reduction activities with plutonium risk reduction activities
- Perform stabilization of high risk plutonium liquids, metals, oxides, and residue preferentially
- Accelerate shipment of SNM offsite
- Perform lower risk environmental cleanup, facility demolition, and offsite radioactive waste shipment commensurate with funding availability

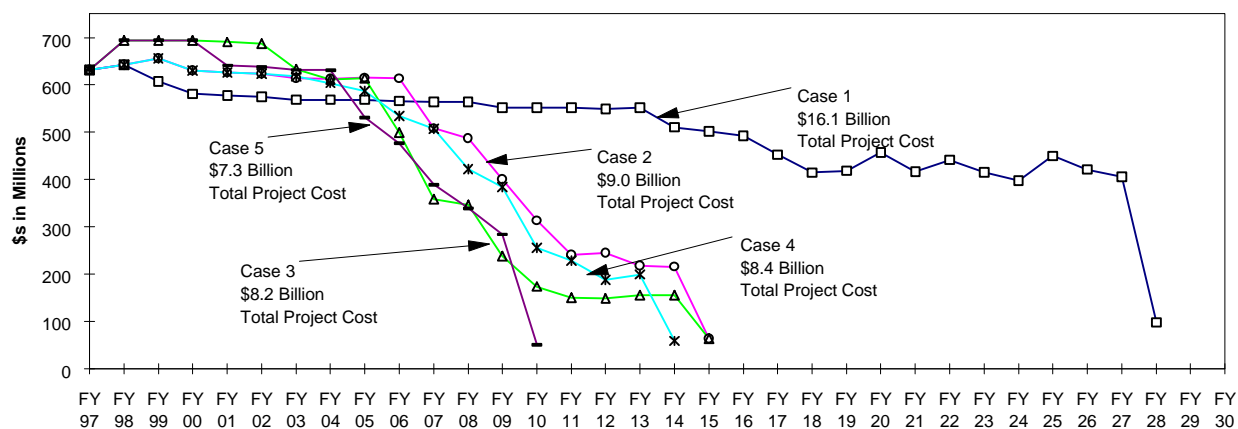
#### Case 5

- Provide facility safety envelopes commensurate with operational period
- Balance mortgage reduction activities with accelerated plutonium risk reduction activities
- Perform accelerated stabilization of high risk plutonium liquids, metal, oxides, and residues to enable shipment of all SNM offsite by end of 2004
- Perform environmental cleanup based on recently negotiated RFCA milestones, with facility demolition sequenced afterwards
- Ship radioactive waste offsite as aggressively as possible within funding constraints

#### Case Cost and Schedule Comparison

The major distinguishing features of the five cases evaluated as part of this planning effort is the maximum annual funding assumed and whether SNM is shipped offsite early or late in the schedule. Since all of the cases achieve a common end state, comparison of total project (case) cost, schedule, and rate of risk reduction are the keys to understanding case differences.

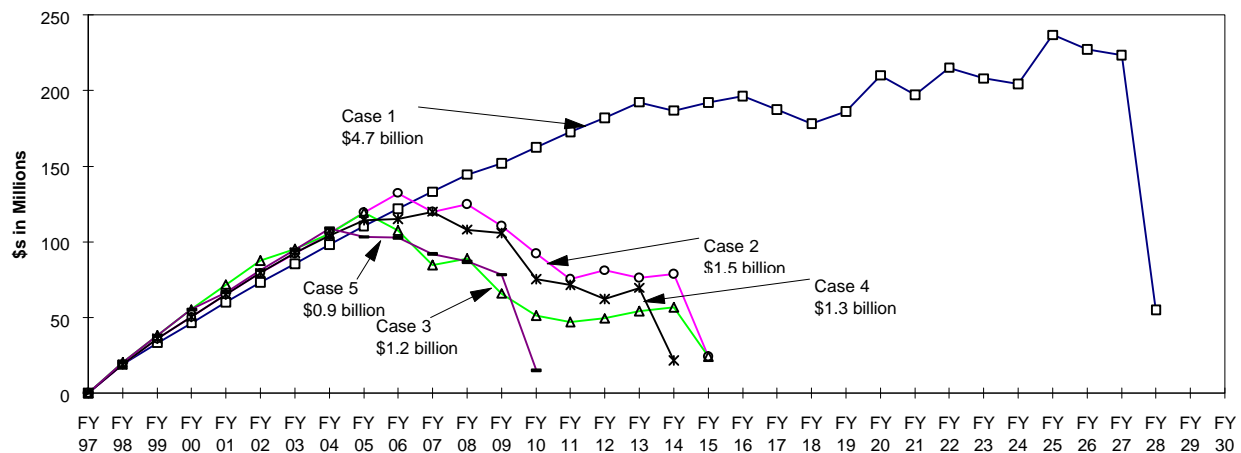
Figure ES-3 demonstrates that a nominal increase in annual funding has a profound effect on overall project cost and duration.



**Figure ES-3**  
**Funding, Duration, and Closure Cost Comparison - All Cases**

There is a substantial and obvious difference of almost 18 years and \$8-9 billion between the case which achieves the latest end state (Case 1) and the case that achieves the earliest end state (Case 5). This large cost and schedule difference is due to the \$50- \$100 million increase in annual funding of Case 5 versus Case 1 for about a 7 year period and the early shipment of SNM offsite. The three major reasons for the large “leveraging” effect of early higher annual funding and early SNM shipment are:

1. The mortgage (cost to maintain the buildings that store or handle radioactive and other hazardous materials, safety, security, management, other infrastructures) consumes about 50 to 60 percent of the annual budget. Therefore, additional early annual funding in Case 5 results in a significant increase in the discretionary money available to perform cleanup activities which result in significant reduction in the Site’s mortgage.
2. The compounding effect of escalation (assumed to be 2.7 percent per year after FY98) consumes a significant portion of available funding in the outyears. This effect is magnified as project duration increases (Figure ES-4).
3. Maximizing risk and mortgage reduction (i.e., stabilizing and shipping SNM) in earlier years avoids large costs in later years for management, support, and infrastructure maintenance.



**Figure ES-4**  
**Case Escalation Comparison**

### Mining Efficiencies

A key element to achieving the end state in an accelerated fashion in all cases depends, to a some extent, on making continuous improvement in achieving efficiency in the way work is conducted. It is estimated that approximately 60 percent of the annual Site budget is spent on mortgage activities related to maintaining the necessary infrastructure, and management and technical support to ensure that the hazards posed by the Site to its workers, the public, and the environment are controlled. Therefore, about 40 percent of the annual Site budget is available to perform closure work (e.g., stabilize and ship SNM and radioactive wastes, D&D facilities, and cleanup environmental contamination). Achieving continuous efficiencies in the cost of the Site’s mortgage activities results in more funding to accomplish closure activities. Similarly, achieving efficiencies in the cost of the closure activities results in additional funding for more closure activities.

This Discussion Draft includes planned efficiencies in all cases. An average of five percent efficiency is achieved each year in the areas of infrastructure, and management and technical support. This five percent efficiency equates to annual savings of about \$10-15 million per year. Additionally, Case 5 assumes even greater efficiencies in management and technical support than the other four cases (an additional \$4-5 million per year).

The additional early funding in Case 5 as compared with Case 2, as well as the redeployment of the funds that were planned to be expended on the new Interim Storage Vault construction and operation, provides for an acceleration of closure from FY2014 to FY2009, expediting work in SNM stabilization and shipping that is on the critical path. The Site goal would then be to find ways to use additional efficiencies and incentives to cut four additional years and approximately \$1.0 billion from the closure project, closing the Site by FY2006.

The Site is employing innovative contracting strategies through its Integrating Management Contractor (IMC) contract which provide incentives to accelerate cleanup and work efficiently. Savings that are realized through efficiency are shared, as profit, with the IMC. In effect, the contractor is incentivized to assume more risk for greater reward, resulting in more closure work accomplished. The Site's experience to date with standard and superstretch performance measures (incentives) has shown that the Site's contractors can identify efficiencies to complete scheduled tasks, thus, making funding available for previously unfunded work. For example, to date in FY1997 the Site's contractors have found efficiencies that have provided \$30 million to perform closure work approved in the Site baseline, but unfunded at the beginning of the fiscal year. In addition, the contractors have confidence they will be able to identify the remaining efficiencies which will allow the majority of unfunded superstretch performance measures (PMs) to be funded and completed.

Specific areas that can help close the schedule gap are:

#### Current Initiatives

- The Integrated Management Contract in place provides a positive incentive structure for real work, fixed price contracting, and clear goal achievement.
- Superstretch PMs have provided a vehicle to motivate the IMC to accomplish additional scope of work in the current year baseline. The maximum fee is paid when efficiencies are found, the resulting savings applied to unfunded priorities, and the priority tasks are completed.
- Gateway PMs eliminate the "bow wave" effect by restricting work left uncompleted one year from being a candidate for fee in the following year. Gateway PMs have no fee attached but must be completed as an enabling "gateway" prior to qualifying for a fee performance activity in the next fiscal year.
- The contract management team has gained almost two years of experience through two performance measurement cycles on how to gain maximum benefit from the contract. It is believed that major strides in this area are being and will continue to be demonstrated.
- The combined PM and contract management strategies have provided a net efficiency that has allowed the Site to add an additional \$30 million of work scope to the baseline for FY1997. DOE believes a

reasonable extrapolation of this kind of success over the life of the Site closure project can demonstrate that Site cleanup and closure can be accomplished by the end of FY2006.

### Alignment and Engagement

- The surrounding community, including local and state governments, strongly supports the ten year planning goals. Stronger alignment and support is anticipated as the Discussion Draft moves from planning to aggressive implementation.
- The Rocky Flats Field Office (RFFO) staff and management are fully engaged in the ten year plan goals, issues, and actions necessary for success. This alignment and focus will continue to unlock the creative energies of the Federal workforce toward achieving a goal which is both worthy and possible. RFCA provides a flexible regulatory framework progress with alignment to a common vision. This regulatory posture provides an opportunity for creative progress, but also an implied obligation to use the flexibility for true progress.

With current initiatives, contracting strategies, and efficiencies discussed above, DOE, RFFO commits to reducing the Discussion Draft Case 5 closure date two to two and one-half additional years. The DOE is also considering additional incentives. These additional incentives are not discussed in detail here, as some involve contractual matters that are business proprietary and others are evolving as the Site continues to learn and improve. These additional incentives are by no means certain of success, as it will take significant breakthroughs to meet this challenge. RFFO will work to make a four year reduction in schedule and \$1 billion reduction in total project cost a reality.

DOE, Headquarters (HQ) involvement is required in resolving the following key issues on complex-wide integration and efficiencies that are critical to success at Rocky Flats:

- Processing of solid residues is a critical path activity to achieve Site closure. DOE, HQ assistance with this issue could allow expedited offsite shipment of some residues with minimal or no treatment at Rocky Flats. The reduced scope of residue treatment will facilitate achievement of the Site's 2006 Plan.
- The Site's defined end state requires removal of all materials from Rocky Flats to allow final demolition of facilities and environmental restoration. DOE, HQ must open disposition pathways for plutonium metals and oxides, TRU wastes, and low-level wastes (above the commercial 1 nCi/gm acceptance levels) for the Site to achieve the ten year goals and assure receiver sites are prepared to accept SNM and waste.
- Opening WIPP in FY1998 is critical for the Site to meet shipping schedules.
- The Site needs a final determination on setting the Safeguards Termination Limits for plutonium residues, so that planning and scheduling for onsite residue treatment can proceed.
- Availability of nuclear material shipping containers is critical to meet shipping schedules. Further, transportation corridors must remain open.

### Compliance



RFETS is fully committed to regulatory compliance at Rocky Flats. Programs are in place to support compliance with environmental regulations, finalized agency agreements, consent orders, applicable DOE Orders, and DNFSB recommendations.

Achieving accelerated and safe closure of the Site is completely consistent with maintaining regulatory compliance. In fact, current agency agreements, consent orders, and DNFSB recommendations drive aggressive and safe cleanup of the Site. Further, performance enhancements relating to reducing project costs and accelerating the closure project schedule actually improve the Site compliance posture by stabilizing and removing nuclear materials from the Site and performing environmental remediation sooner.

This Discussion Draft compares a number of cases which evaluate the impacts of different funding and technical scope assumptions. These different cases necessarily dictate different approaches to compliance in terms of strategy, tactics, and timing. Compliance strategies may be adjusted to alter the time distribution of resources required for compliance. In some cases, renegotiation of commitments and milestones may be necessary to properly balance the need to maintain compliance with the cleanup of the Site in a cost-effective and safe manner. Relief from the negotiated milestones is not a certainty. If the Site does not receive its projected funding, the terms of the Rocky Flats Cleanup Agreement do not provide for automatic relief from negotiated milestones.

## **INTERSITE AND INTERSTATE INTERACTIONS**

The cleanup of Rocky Flats will result in significant quantities of materials that will need to be shipped to other states for management. All five cases call for shipment of all of Rocky Flats' SNM, and radioactive and hazardous wastes generated from cleanup to offsite DOE repositories, and DOE or commercial treatment and disposal facilities, respectively. Table ES-4 provides estimates of the materials to be generated from cleanup that will require eventual offsite management.

**Table ES-4**  
**Estimated Inventory of Cleanup Materials Generated**

<b>MATERIAL TYPE</b>	<b>ESTIMATED QUANTITIES</b>
Plutonium Metal	6,600 kilograms
Plutonium Oxide	3,200 kilograms
Plutonium Contaminated Residues (bulk)	106,000 kilograms
Enriched Uranium	6,700 kilograms
Transuranic Waste (includes mixed waste)	15,000 cubic meters
Low-level Waste (includes mixed waste)	138,000 cubic meters
Hazardous Waste	2,400 cubic meters
Classified and Secret Documents	3,500,000 documents

Figure ES-5 depicts the locations of current and planned destinations for Rocky Flats' materials.

**Figure ES-5**  
**Current and Planned Destinations for Rocky Flats Materials**

**STAKEHOLDER INVOLVEMENT**

The RFFO and Kaiser-Hill have been in the process of developing and implementing a strategy to accelerate the cleanup of the Site for the past year and a half. During that time, the Discussion Draft has evolved due, in large part, to the active involvement of the Site's stakeholders. Since July 1995, more than 50 separate public meetings, workshops, and focus group meetings have been conducted for the express purpose of discussing the key elements of the Discussion Draft and its predecessor plans.

A number of elements of the Discussion Draft continue to receive significant stakeholder interest. These include: (1) plutonium storage and disposition; (2) transuranic waste disposal at DOE's Waste Isolation Pilot Plant; (3) low-level waste storage, treatment, and disposal; (4) interim soil action levels for radionuclides; and (5) closure project cost and schedules changes. Some of these issues have been or will be resolved to the extent possible, in time for incorporation into the Draft 2006 Plan to be released later this year. After another public comment period, the initial 2006 Plan will be released in early 1998. Resolution of other issues will require continued effort after submittal of the initial 2006 Plan. It is clear that continued public involvement will be key to making the 2006 Plan a success. Future public involvement will continue to follow the course set over the past year and a half and will include public meetings, informal and formal presentations and briefings, and the use of a number of written informational communication tools.

The RFFO recognizes that the Discussion Draft is a planning document and it does not contain all of the answers needed. It is DOE's intent to address all comments. RFFO is now requesting public comments on this Discussion Draft over the next 90 days, with the public comment period ending September 9, 1997.

DOE, EM (EM) in a parallel effort has asked sites to involve stakeholders in the formulation of the FY99 budget. The EM FY99 budget is being developed concurrently with the Discussion Draft. In July, EM will be holding a national feedback session to discuss the EM national FY99 budget. The options and alternatives described in the discussion draft and future iterations of the 2006 Plan will impact budget formulation and execution activities. The planning process will allow EM to develop annual budgets in the context of long term objectives.

Commentors are requested to send all comments on the Rocky Flats Discussion Draft to:

Mariane Anderson  
U. S. Department of Energy  
Rocky Flats Field Office  
P. O. Box 928  
Golden, CO 80402-0928

E: Mail: Mariane.Anderson@ rfets.gov  
Call (303) 966-6088 to request a copy of the Rocky Flats Discussion Draft

All comments on the DOE's overall strategy and integration of waste management projects should be sent to:

U. S. Department of Energy  
Mr. Gene Schmitt  
P. O. Box 44818  
Washington, DC 20026-4481

E:Mail: focuson2006@em.doe.gov (not case sensitive)  
Call (800) 736-3282 to request a coy of the National Discussion Draft

## **FUTURE OPPORTUNITIES AND ISSUES**

The Discussion Draft reveals a number of future opportunities and issues that would impact the end state cost and schedule. Key opportunities and issues to be evaluated further and included in the Draft 2006 Plan include:

### Accelerating the Shipment of Special Nuclear Materials

Preliminary assessment of the impact of accelerated shipment of Rocky Flats SNM to offsite repositories indicates that significant total project cost savings and total project schedule compression can be realized. The comparison of Case 2 and Case 4, which evaluated the impact of accelerated shipment and no construction of a new Interim Storage Vault (ISV) at identical annual funding levels, demonstrated project life-cycle costs savings of approximately \$0.6 billion and total project schedule compression of one year. Under Case 5, where an early offsite SNM shipment strategy and no construction of a new ISV is assumed, and this assumption is combined with additional, early funding (about \$50M above Case 2 for 3 years), project life cycle savings of an additional \$1.1 billion can be achieved when compared to Case 4. Further, the end state is reached five years earlier. Some of the obstacles to be overcome include the acceleration of stabilizing and repackaging plutonium destined for offsite shipment and early availability of receiver sites. The RFFO's ability to ship SNM metal and oxide is dependent on the outcome of the Surplus Pu Disposition Environmental Impact Statement (EIS).

### Rebaselining Residue Stabilization

Rocky Flats currently stores approximately 106,000 kilograms of plutonium contaminated residues resulting from past production activities. The planned stabilization of the residues is on the critical path to achieve the end state. An EIS is currently under way to evaluate the treatment strategy for the residues to ensure the resulting radioactive wastes and SNM meet all DOE requirements for subsequent storage and disposal. This EIS should evaluate intersite transfer of residues such as our assumption that sand, slag and crucible, fluorides and scrub alloy may be transferred to the Savannah River Site for efficient disposition. It is unclear at this time whether the new treatment strategy will result in positive or negative impacts on the cost and schedule of the Rocky Flats 2006 Plan. An opportunity for schedule compression and cost reduction can be realized should a review of the safeguards and security requirements for the residues allow appropriate reduction in treatment which would facilitate disposition as waste. Consistent with the commitment not to include items in the Discussion Draft which have not been discussed with stakeholders, this action will be fully discussed with stakeholders prior to the Draft 2006 Plan scheduled to be released later this year.

### Disposing of Transuranic Waste

Shipment of the Site's transuranic (TRU) waste to WIPP in New Mexico is a key activity described in the Discussion Draft. The major future source of TRU waste results from the stabilization of plutonium residues. The amount of transuranic waste that can be shipped at one time on a transportation vehicle is limited by a number of factors relating to limitations imposed on the transportation vehicle. If greater amounts of TRU waste can be included in each shipment, then the number of shipments required to remove all of the Site's current and projected TRU waste could be significantly reduced and significant cost savings realized.

### Achieving Mortgage Reduction

A key driver of the total cost and length of the schedule required to achieve the end state is related to the significant costs to maintain the safety envelopes of the nuclear facilities and the associated management and support costs. A number of efforts are under way to reduce the mortgage costs more rapidly. These efforts include:

- Closer examination of the relationship between the phases of deactivation, and operating and maintenance costs of the nuclear facilities.
- Reexamination of the Authorization Bases which describe the safety envelopes required for the nuclear facilities to ensure they are necessary and sufficient.
- Continuous reexamination of mortgage costs by the use of reengineering teams, benchmarking activities, and the innovative use of various methods to initiate incentives for the contractor to reduce the mortgage (e.g., performance measures and cost savings reimbursement programs).

## **1.0 INTRODUCTION**

### **1.1 Purpose**

This document, *Accelerating Cleanup: Focus on 2006, Discussion Draft* (Discussion Draft) describes the Department of Energy's (DOE's) Environmental Management (EM) commitment to make substantial progress over the next ten years toward maximum stabilization of materials and cleanup of Rocky Flats. By accelerating the schedule for cleanup, many risks can be reduced faster. The substantial mortgage costs associated with guarding Special Nuclear Material (SNM) and maintaining Site facilities can be eliminated earlier with a dramatic reduction in the overall cost of cleanup. It is the intention of DOE, EM that all EM sites' Discussion Drafts serve as a strategic planning tool that will assist DOE in driving budget decisions, sequencing projects, and other actions needed to meet the its cleanup objectives. The Discussion Draft will help provide a level of confidence for the public and stakeholders by illustrating a sense of purpose and direction with an end in sight.

Rocky Flats, along with other EM Sites, is developing its own Discussion Draft. DOE Headquarters (HQ) will consolidate all of the field submissions into a single unified Discussion Draft Environmental Management document for subsequent review by Stakeholders.

### **1.2 Background**

The Rocky Flats Discussion Draft has its roots in several proposals and planning documents that have been developed over the last two years. In the Kaiser-Hill (K-H) Team's contract proposal and Best and Final Offer (BAFO) submitted to the Department of Energy in early 1995, a strategy of accelerating the cleanup and closure of Rocky Flats was already taking shape. DOE's alignment with many of the strategies in the BAFO became evident when the Integrating Management Contract was awarded to K-H in April of 1995.

Soon thereafter, the Site further refined the ideas and strategies proposed in the BAFO. The Site team drafted a plan in August of 1995, known as the Interim End State Plan (IES), which described how accelerated cleanup of the Site could take place. The IES effort eventually became known as the Accelerated Site Action Project (ASAP). In October 1995, a draft ASAP Phase I was completed in which a proof of concept was presented describing one possible future strategy for the Site. This strategy showed that given a certain set of assumptions, closure of the Site could be accelerated by decades at a savings of many billions of dollars over the previous DOE plans for cleanup as described in DOE's Baseline Environmental Management Reports I and II (BEMR).

Completion of the first phase of ASAP was followed by ASAP Phase II and the publication of "Choices for Rocky Flats" (Choices) in February 1996. The Choices document developed a series of eight possible planning alternatives which began to bracket what may be possible at Rocky Flats, given a series of assumptions and constraints related to cost and schedule, land use, waste disposition, and risk. Collectively, these early planning efforts have generally become known as the Rocky Flats Closure Project.

Much of the early work completed for the IES and ASAP projects as well as for BEMR I and II contributed to the Draft Version 1.0 Ten Year Plan (TYP 1.0), submitted in July 1996. The many related interdependencies and models developed during the IES and ASAP allowed detailed

planning and validation efforts that support the strategic planning purposes. The work of those earlier planning efforts is continued in this Discussion Draft.

## **1.3 Approach**

### Guiding Principles

The development of the Rocky Flats Discussion Draft was guided by seven principles published by DOE Assistant Secretary for EM Al Alm on June 20, 1996:

1. Eliminate the most urgent risks
2. Reduce mortgage and support costs to free up funds for further risk reduction
3. Protect worker health and safety
4. Reduce the generation of wastes
5. Create a collaborative relationship between DOE and its regulators and stakeholders
6. Focus science and technology development on cost and risk reduction
7. Integrate waste treatment and disposal across sites

These guiding principles were combined with a set of Site specific assumptions (see Subsection 1.4) to develop the Discussion Draft around major projects. TYP 1.0 introduced 12 major projects which were the focus of the plan at that time. However, continued development of the Site Work Breakdown Structure or WBS, (a hierarchy of work to complete the Site mission, major objectives, and integration of activities), and the transition to a single closure project orientation, have resulted in the delineation of the current 32 projects. The 32 major projects are cross-referenced to WBS line items in Table 1-2 at the end of this section.

### Projectization

Viewing the Site as a collection of major projects, sometimes referred to as the “projectization” of the Site, is a significant shift in the way of doing business at Rocky Flats from the former Management & Operating (M&O) culture. Previously, planning work at the Site has generally been organized into five major categories. These include: Special Nuclear Materials Management; Environmental Restoration; Waste Management; Deactivation, Decontamination and Decommissioning (often referred to as D&D); and Infrastructure Management. This planning structure still exists. However, as Site projectization continues, the focus of the work planning and implementation will continue to shift to individual projects and away from the functional departmental structure.

### Case Development

DOE Headquarters provided two different funding levels to be used to construct the Discussion Draft. Using funding levels for Case 1 and Case 2, cost estimates, schedules and logics, and work scope descriptions, were developed for each. Annual funding levels for Case 1 and Case 2 are included in Table 1-1. This document includes an analysis of Cases 1 and 2, and the strategies employed, the work prioritization, methodologies, and assumptions associated with each. The document also contains a discussion of elements that are common to both cases, such as regulatory compliance, stakeholder involvement plans, and privatization initiatives.

For comparison purposes, cost and schedule estimates were prepared for three additional cases. Cases 3 and 5 were initiated by the Site, and Case 4 was requested by DOE, HQ. The purpose of these special cases was to examine more closely the impacts of funding levels on total project cost and project duration, and the impacts of accelerated shipment of plutonium to offsite repositories in lieu of constructing a new onsite interim plutonium storage vault. Specifically, Case 5 is an estimate of the annual funding that would be required to get the Site back on the schedule presented in the TYP 1.0 submittal (i.e., nearly all cleanup is complete by the end of FY2006). Case 4 assumes the same funding level as Case 2, but instead of building a new interim storage vault for plutonium pits, parts, metal, and oxides, the materials would be shipped to Pantex or Savannah River by about the end of FY2005. Case 3 combines the higher funding level of Case 5 with construction of an onsite interim plutonium storage vault and a delay in offsite shipment of SNM. Annual funding levels for Case 3, Case 4, and Case 5 are also included in Table 1-1. Note that unrestricted privatization funding was assumed for Case 5.

**Table 1-1**  
**Maximum Annual Funding Levels for Cases 1, 2, 3, 4, and 5**  
(in Thousands of Dollars)

<b>CASE</b>	<b>FY98</b>	<b>FY99</b>	<b>FY00 and OUTYEARS</b>
<b>Case 1</b>			
EM&DP	605,521	581,100	581,100
Privatization	36,600	30,000	0
<b>Total</b>	<b>642,121</b>	<b>611,100</b>	<b>581,100</b>
<b>Case 2</b>			
EM&DP	605,521	629,927	629,927
Privatization	36,600	30,000	0
<b>Total</b>	<b>642,121</b>	<b>659,927</b>	<b>629,927</b>
<b>Case 3</b>			
EM&DP	657,671	664,162	694,162
Privatization	36,600	30,000	0
<b>Total</b>	<b>694,271</b>	<b>694,162</b>	<b>694,162</b>
<b>Case 4</b>			
EM&DP	605,521	629,927	629,927
Privatization	36,600	30,000	0
<b>Total</b>	<b>642,121</b>	<b>659,927</b>	<b>629,927</b>
<b>Case 5</b>			
EM&DP	694,271	694,162	694,162
Privatization	0	0	0
<b>Total</b>	<b>694,271</b>	<b>694,162</b>	<b>694,162*</b>

\* See Case 5 Funding Profile, Vol. II

#### Organization of the Discussion Draft

The Discussion Draft is comprised of three separate volumes. **Volume I** includes all of the narrative sections and cost estimate summary sheets and is organized as follows:

*Executive Summary* - Contains a summary of the entire document.

*Section 1 Introduction* - Includes the purpose of the Discussion Draft, the background and approach of the project, and the common assumptions used in developing the document.

*Section 2 Strategies and Prioritization* - Lists the strategies and prioritization methods used to develop the document.

*Section 3 Discussion Draft, Cost and Schedule* - Describes the scope of work for each of the five cases, and gives a summary level schedule and cost estimate for the cases, as well as the methodologies used to develop the estimates.

*Section 4 Analysis* - Compares the five cases described in Section 3 in terms of their annual funding profiles, overall closure project cost, schedule, and rate of risk reduction. It discusses the timetable and sequencing of seven key risk reduction activities for the five cases; workforce projections and some of their implications; and, finally, the chief differences between the latest (1996) Baseline Environmental Management Report (BEMR), this Discussion Draft, and TYP 1.0.

*Section 5 Stakeholder Involvement* - Describes past and future Stakeholder involvement opportunities and concerns.

*Section 6 Regulatory Compliance* - Discusses regulatory compliance.

*Section 7 Privatization* - Outlines privatization initiatives.

#### Attachments to Volume I

*Attachment A Action Plans* - No Rocky Flats-specific Action Plans were required to be developed.

*Attachment B Privatization Projects* - Describes three candidate privatization projects.

*Attachment C ADS/Project Crosswalk* - Compares Activity Data Sheets to Discussion Draft projects.

*Attachment D BEMR/Cleanup Plans Comparison* - Describes the differences between the 1996 Baseline Environmental Management Report and the Discussion Draft. This attachment is not included in this draft.

*Attachment E Business Plan* - Discusses contracting strategy for Rocky Flats.

**Volume II** contains Cost Estimate spreadsheets and Primavera Schedule spreadsheets for each of the five cases. The cost estimate spreadsheets are organized by the Site WBS. The schedules are also organized by the WBS.

**Volume III** contains the Project Baseline Summaries (PBS) which were submitted to DOE, HQ February 28, 1997, for Case 1 and Case 2 which were developed as reference cases used to develop this Site's Discussion Draft. A PBS contains detailed project information that will serve as the major source of data for DOE, HQ. The information in the PBS includes the scope of work, costs, schedules, metrics, milestones, compliance drivers, budget justifications, narrative descriptions, and other information for each of the projects. A total of 64 PBS spreadsheets were completed (32 projects for each of the two cases). PBSs were not required to be developed for



Case 3, Case 4, and Case 5. Enhanced performance targets will be incorporated into future revisions to PBSs.

## **1.4 Planning Assumptions**

The following 30 assumptions were used to develop the Discussion Draft and, in general, will impact most or all of the 32 projects. Additional assumptions that apply to specific projects are detailed for Cases 1 and 2 in Section C.3 of each of the Project Baseline Summary (PBS) spreadsheets in Volume III of this report. If proven invalid, these assumptions, whether sitewide or project-specific, will probably have an impact on the plan or project's scope, cost, or schedule. Assumptions may also form a significant part of the basis for a schedule or cost estimate.

Some of these assumptions may be controversial, but all assumptions have been discussed over the past year with Rocky Flats stakeholders. Where unresolved issues remain, stakeholder involvement will continue to be solicited and incorporated into future planning efforts and annual updates to the Discussion Draft. Major changes or departures from initial planning assumptions will warrant significant public involvement. Additional details on public involvement strategies and opportunities can be found in Section 5.0 of this document.

### General Assumptions

No major changes in the Integrating Management Contractor structure will occur. DOE, Rocky Flats Field Office (RFFO) will not assume the role as Site integrator.

Infrastructure and management costs (WBS elements 1.1.7.02, 1.1.8.03, and 1.1.8.04) will be reduced on the average, five percent a year from the FY97 baseline. In Case 5, WBS element 1.1.8.05, RFFO Direction and Support, will also be reduced five percent per year from the FY97 baseline.

The regulatory framework established in the Final Rocky Flats Cleanup Agreement (RFCA), dated July 19, 1996, will be followed.

The Site will maintain compliance with all laws, regulations, and legally binding agreements including, but not limited to,

- RFCA
- Federal Facility Compliance Agreement (FFCA)
- Residue Consent Agreement
- Toxic Substances Control Act (TSCA)
- Clean Air Act (CAA)
- Clean Water Act (CWA)
- Resource Conservation and Recovery Act (RCRA)
- National Pollutant Discharge Elimination System (NPDES)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- McKinney Act
- Price-Anderson Amendments Act (PAAA)
- National Historic Preservation Act (NHPA)
- Occupational Safety and Health Act (OSHA)

- National Environmental Policy Act (NEPA)

The availability of receiver sites for SNM waste and other materials to be shipped offsite will not delay shipping schedules, (i.e., sites will be available as planned).

DOE will continue to fund water, gas, and electric utilities separately from the Kaiser-Hill budget.

Workforce management will be conducted strictly according to Section 3161 of the Defense Authorization Act.

Unspent prior years' capital funds will be available for carryover to offset new capital budget authorization requirements.

#### Special Nuclear Material Assumptions

Plutonium will be stored in a new Interim Storage Vault (ISV) at the Site until the Pu is shipped offsite to a yet-to-be identified repository by the end of 2015. (Note: This assumption does not apply to Case 4 or Case 5)

No significant unplanned Defense Nuclear Facilities Safety Board (DNFSB) recommendations will be received.

Compliance with the technical scope in the Site Integrated Stabilization Management Plan (SISMP) Rev. 5 will be sought.

Building 371 shall be the temporary repository for all SNM until the ISV is available or until all SNM is shipped offsite early (as in Case 4 and Case 5).

#### Waste Management Assumptions

A significant quantity of excavated Site soils can be treated to meet cleanup limits prescribed in RFCA and returned to the excavation site, (i.e., no offsite disposal).

Clean decontamination and decommissioning construction debris may be used as clean fill onsite.

Hazardous, Low Level/Low Level Mixed (LLW/LLMW), Transuranic/Transuranic Mixed (TRU/TRM), and sanitary waste will be disposed offsite. This includes existing pondcrete and saltcrete inventories.

Commercial and DOE disposal facilities will be available to accept all LLMW currently in inventory and projected to be generated over the life of the Discussion Draft.

LLW and LLMW generated in excess of shipping capacity will be managed on an interim basis in either new onsite facilities (probably metal buildings) or retrofitted existing facilities, whichever is most cost-effective. Such consolidated storage will require designation as a Corrective Action Management Unit (CAMU).

The Waste Isolation Pilot Plant (WIPP) will open in FY1998 and will receive all of Rocky Flats' TRU wastes according to Rocky Flats' schedules.

WIPP will bear the costs of all TRU waste transportation and disposal.

No unanticipated changes will be made to applicable disposal site waste acceptance criteria or transportation requirements.

#### Decommissioning and Decontamination (D&D) Assumptions

All former nuclear production facilities, except those set aside for potential economic development, as well as the vast majority of other Site facilities, will be demolished and only uncontaminated foundations or utilities will be left in place.

The subsurface utilities between facilities that are outside the facility footprints will be capped and left in place. Removal of utilities in order to remediate contaminated areas will be performed as required. Uncontaminated underground storage tanks (USTs) and utility systems will be left in place.

The process for identifying and dispositioning excess government property will be used as part of the process for deactivating and decommissioning facilities.

Building structures and equipment will either be decontaminated to the requirements of DOE Order 5400.5, "Radiation Protection of the Public and the Environment," or treated as radioactive waste. All radioactive wastes generated by decontamination and decommissioning will be containerized.

#### Environmental Restoration Assumptions

The Environmental Restoration (ER) program will receive, at a minimum, \$10 Million for the total ER program each year. Only Case 5 incorporates FY1998 and FY1999 RFCA milestones described in the March 21, 1997 letter from the State of Colorado. This information was not available when Cases 1 through 4 were prepared.

Only the IHSS/Potential Area of Concern (PAC)/Under-Building Contamination (UBC) shown on the ER Ranking List in Attachment 4 of RFCA as requiring remediation will be remediated.

ER soil action levels will conform to the final "Action Levels for Radionuclides in Soils for the Rocky Flats Cleanup Agreement," October 31, 1996.

Engineered caps will be used as an integral part of the Site's environmental closure strategy, and the regulatory agencies will agree to the use of the closure caps.

### Privatization/Economic Conversion Assumptions

Funding for privatization for FY1998 is assumed to be \$36.6 million, and approximately \$30 million for FY1999. No additional funds will be made available in FY2000 and beyond. Under Case 5, unrestricted privatization funds were assumed.

Use of National Conversion Pilot Project (NCP) buildings for economic conversion will continue through the terms of the planned leases. Economic conversion will be planned for the buildings previously identified by RFLII: Buildings 130, 131, 125, 850, 444/447, 865, 883, and 460. No DOE expenditures will be assumed for associated demolition, waste, and remediation activities for these buildings, nor will these buildings be a driver for sustaining utility services. Further dialogue with the designated community reuse organization and/or potential users will be required to coordinate the use of Site utilities or their replacement.

**Table 1-2**  
**Cross-Reference of the Projects to Site WBS**

<b>Project Number</b>	<b>Project Title</b>	<b>WBS Line Item Number</b>	<b>WBS Title</b>
01	Buffer Zone Closure Project	1.1.01	Achieve Intermediate Site Condition for Outer Buffer Zone
		1.1.02	Achieve Intermediate Site Condition for Formerly Contaminated Buffer Zone
		1.1.03	Achieve Intermediate Site Condition for Inner Buffer Zone
02	Waste Management Project	1.1.04.01 (Excluding 1.1.04.01.04.08)	Develop, Operate & Close Sanitary Waste Management Systems
		1.1.04.02 (Excluding 1.1.04.02.02)	Develop, Operate & Maintain Low-Level Waste (LLW) and Low-Level Mixed Waste (LLMW) Storage Facilities
		1.1.04.03 (Excluding 1.1.04.03.02)	Develop, Operate, and Maintain Transuranic/Transuranic Mixed (TRU/TRUM) Waste Storage Facilities
		1.1.04.03.02	Develop new TRU/TRUM Storage Facilities
		1.1.04.04	Provide offsite waste disposal
		1.1.04.05	Operate & Maintain Waste Treatment Processes
		1.1.06.29.07	Provide Waste Management Capital Equipment & General Plant Projects (GPP)
		1.1.04.06.04	Future Comprehensive Treatment and Management Plan (CTMP) (Cementation Line Item)
		1.1.04.06.05	B774 Sludge Immobilization Project
		1.1.04.01.04.08	Sewage Treatment Plant Upgrades (90-D-126)
		1.1.04.06.01.01	Liquid Waste Treatment Upgrades (Expense) Support
		1.1.04.06.02	CTMP Immobilization of Misc. Waste
		1.1.04.06.03	Surface Organic Contaminant Removal
03	Remediation Waste & Contingent Storage Project	1.1.04.02.02	Develop New LLW/LLMW Storage Facilities
04	SNM Capital Support Project	1.1.04.07.01	Upgrade Existing Plutonium (Pu) Storage Facilities
		1.1.06.29.06	Provide SNM Capital Equipment and GPP
05	IAEA Project	1.1.04.07.02.04	International Atomic Energy Agency (IAEA) Inspections

**Table 1-2 (cont'd)**

<b>Project Number</b>	<b>Project Title</b>	<b>WBS Line Item Number</b>	<b>WBS Title</b>
06	SNM Consolidation Project	1.1.04.07.04	Operate and Maintain New Pu Storage Facility
		1.1.04.07.02 (Excluding 1.1.04.07.02.04)	Operate and Maintain Existing Pu Storage Facility
07	New Pu Interim Storage Vault	1.1.04.07.03	Develop & Implement New Pu Storage Facility
08	Pu Metals and Oxides Stabilization Project	1.1.04.08.01	Develop Pu Prototype Processing and Packaging
		1.1.04.09.05	Operate Pu Metal/Oxide Stabilization Process
		1.1.04.09.06	Operate Pu Processing and Packaging
		1.1.04.08.02.01	Project for Accountability and Safe Storage (PASS) Capital Project
		1.1.04.08.02.02	PASS Expense Project
09	Pu Solid Residue Stabilization Project	1.1.04.08.03	Develop SNM Solid Residue Elimination Project (96-D-468)
		1.1.04.09.04	Operate SNM Solid Residue Elimination Process
10	Pu Liquid Stabilization Project	1.1.04.08.04	Develop SNM Liquid Stabilization Processing Capability
		1.1.04.09.03	Operate SNM Liquid Stabilization Process
11	Uranium Disposition Project	1.1.04.09.01	Operate Enriched Uranium Decontamination Process
		1.1.04.09.02	Operate Highly Enriched Uranyl Nitrate (HEUN) Process
12	SNM Shipping Project	1.1.04.10	Provide SNM Offsite Shipment
13	Closure Caps Project	1.1.04.11	Develop & Construct New Closure Cap(s)
14	Industrial Zone Closure Project	1.1.05	Achieve Intermediate Site Condition for Industrial Zone
15	Miscellaneous Production Zone Cluster Closure Project	1.1.06.01	Remove 207 Cluster
		1.1.06.04	Remove 559 Cluster
		1.1.06.05	Remove 566 Cluster
		1.1.06.06	Remove 569 Cluster
		1.1.06.15	Remove 790 Cluster
		1.1.06.16	Remove 800A Cluster

**Table 1-2 (cont'd)**

<b>Project Number</b>	<b>Project Title</b>	<b>WBS Line Item Number</b>	<b>WBS Title</b>
15 (cont'd)	Miscellaneous Production Zone Cluster Closure Project	1.1.06.19 (Partial 1.1.06.19.04)	Remove 886 Cluster
		1.1.06.20	Remove 910 Cluster
		1.1.06.21	Remove 964 Cluster
		1.1.06.22	Remove 980 Cluster
		1.1.06.24	Remove PWTSN Cluster
		1.1.06.25	Remove SECNPZ Cluster
		1.1.06.26	Remove INFELN Cluster
		1.1.06.27	Remove INFWTN Cluster
		1.1.06.28	No-Action Individual Hazardous Substance Site (IHSS) Closeout
16	Building 371 Cluster Closure Project	1.1.06.02	Remove 371/374 Cluster
		1.1.06.03	Remove 371A Cluster
17	Building 707/750 Cluster Closure Project	1.1.06.07	Remove 707 Cluster
		1.1.06.08	Remove 750 Cluster
		1.1.06.09	Remove 750 PAD Cluster
		1.1.06.13	Remove 778 Cluster
18	Building 771/774 Cluster Closure Project	1.1.06.10	Remove 771/774 Cluster
		1.1.06.11	Remove 771A Cluster
19	Building 776/777 Cluster Closure Project	1.1.06.12	Remove 776/777 Cluster
20	Building 881 Cluster Closure Project	1.1.06.17	Remove 881 Cluster
		1.1.06.18	Remove 865/883 Cluster
21	Building 991 Cluster Closure Project	1.1.06.23	Remove 991 Cluster
22	Building 779 Cluster Closure Project	1.1.06.14 (Partial 1.1.06.14.04)	Remove 779 Cluster
23	Utilities & Infrastructure Project	1.1.07.01 Excluding 1.1.07.01.01.09 and 1.1.07.01.02	Provide Utility Services

**Table 1-2 (cont'd)**

<b>Project Number</b>	<b>Project Title</b>	<b>WBS Line Item Number</b>	<b>WBS Title</b>
23	Utilities & Infrastructure Project	1.1.07.02 (Excluding 1.1.07.02.01, .13, .14, .15, .16, .17, and .18)	Provide Site Infrastructure Services
		1.1.04.07.05	Disposition Idle Production Equipment
		1.1.08.04.03	Disposition Excess Property, Material, and Equipment
24	Safeguards and Security Project	1.1.04.08.02.03 through 1.1.04.08.02.17	Master Safeguards and Security Agreement Project (92-D-125)
		1.1.07.02.01	Operate Security and Safeguards
25	Infrastructure Improvement/Replacement Project	1.1.07.02.14	Provide Infrastructure Capital Equipment
		1.1.07.01.02	Implement Telecommunications Projects and Capital Equipment Installations
		1.1.07.02.18	Reconfig. Equipment Relocation Program
		1.1.07.02.17.01	Underground Storage Tank (UST) Integrity Testing
		1.1.07.02.17.02	Management Project
		1.1.07.02.17.03	UST Capital (94-D-122)
		1.1.06.29.03	Health Physics/Environment Effluent Samplers Expense Support
		1.1.07.02.16.03	Infrastructure Replacement Project
		1.1.06.29.01	Environmental Safety & Health (ES&H) Enhancements - Air Monitoring Improvements (95-D-452)
		1.1.07.02.16.02	Plant Fire Security System Replacement Expense (92-D-123)
		1.1.06.29.05	PA Reconfiguration Project (PIDAS) Expense Support
		1.1.07.02.16.01	Critical Alarms and Plant Annun. Sys. Upgrade (91-D-127)
		1.1.07.01.01.09	Future Infrastructure Capital Projects



**Table 1-2 (cont'd)**

<b>Project Number</b>	<b>Project Title</b>	<b>WBS Line Item Number</b>	<b>WBS Title</b>
26	Radioactive Waste Water Treatment System Project	1.1.04.06.01.02	Liquid Waste Treatment Upgrades (Line Item)
27	Analytical Services Project	1.1.07.02.13	Provide Analytical Laboratory Services
28	Work for Others Project	1.03.01.02	Work for Other DOE Sites
		1.03.01.03	Prior Year (FY96) Closeout
		1.03.01.04	Project Termination Costs
		1.03.01.05	EG&G Closeout
		1.03.01.07	Cost Reduction Proposal / Undistributed Budget
29	RFFO Program Direction Project	N/A	Provide RFFO Direction and Support
30	K-H Project Management	1.1.08.04.01	Provide Environmental Compliance Support
		1.1.08.03	Provide Programmatic Support Services
		1.1.08.04.02	Provide Economic Conversion Support
		1.1.08.04 (Excluding 1.1.08.04.01, -02, and -03)	Provide General Technical Support Services
		1.1.08.03.06	Provide Health & Safety Program Direction
		1.1.08.03.09	Provide Nuclear Performance Assurance Program Direction
31	Building 779 D&D	1.1.06.14.04 (partial)	779 Cluster Decommissioning
32	Building 886 D&D	1.1.06.19.04 (partial)	886 Cluster Decommissioning
33	Science & Technology	N/A	N/A
Various	Various (Cost for this WAD will be spread through the indirect rate.)	1.1.08.01	Provide Management (Overhead) Direction
		1.1.08.02	Provide General and Administrative Management Support
N/A	N/A	1.3.01.01	Non-Reimbursable Work

## 2.0 STRATEGIES AND PRIORITIZATION

### 2.1 Major Strategies

In developing the Discussion Draft for the Rocky Flats Environmental Technology Site (Rocky Flats or the Site), a number of major strategies were used in the construction of the work scope and logic, schedules and costs. These strategies embody the seven guiding principles contained in Assistant Secretary Alm's December 1996 *Guidance on the Ten Year Plan*, the *Rocky Flats Cleanup Agreement* (RFCA) requirements finalized on July 19, 1996, and the Site's own work on an accelerated cleanup plan known as the *Accelerated Site Action Project* (ASAP).

The major strategies employed in the Discussion Draft are described below.

- Maintain the Site's safety envelope ensuring the continued safety of Site workers, the public and the environment during closure activities.
- Eliminate the highest priority risks first. Necessary activities primarily encompass the accelerated stabilization, consolidation, and early shipment of the Site's Special Nuclear Materials (SNM), including plutonium and enriched uranium.
- Treat plutonium process residues to meet the Waste Isolation Pilot Plant's (WIPP) Waste Acceptance Criteria to enable accelerated offsite shipment of resulting transuranic wastes.
- Reduce the Site's high nuclear facility baseline costs by accelerating deactivation of these facilities through expedited stabilization and removal of SNM.
- Rely on other U. S. Department of Energy (DOE) and commercial sites to assist Rocky Flats in the timely removal of the Site's SNM and radioactive wastes, as this provides significant mortgage and support cost savings. In the interim, provide cost-effective storage facilities for these materials until they can be shipped offsite.
- Demolish Site facilities and infrastructure to eliminate future funding and safety liabilities, ongoing surveillance and maintenance, and residual radiological contamination management.
- Treat and ship transuranic and low level wastes (including mixed wastes) offsite as quickly as possible to reduce safety and regulatory risks, and reduce the significant mortgage costs associated with the onsite management of these wastes.
- Clean up environmentally contaminated areas to the extent that sources of contamination which pose a significant risk are mitigated and controlled. Higher risk areas are preferentially cleaned up over lower risk areas. Site cleanup is performed to the extent necessary to support future open space uses. Future land use designation is assumed to occur as described in RFCA.
- Reduce infrastructure and management costs at a steady pace. Transition service and support activities to offsite sources as quickly as possible.

- Comply with environmental, health and safety laws, regulations, and agreements.

## 2.2 Risk Management

Risk can take many forms including health and safety (for both the public and worker sectors), environmental, financial, compliance (regulations, standards), security, and political and public acceptance. Rocky Flats has identified a number of potential health and safety risks and other liabilities associated with maintaining the Site in a safe, secure, and environmentally acceptable manner. Although Project Baseline Summaries (PBS's) submitted February 28, 1997 in Volume III do not indicate any "urgent" risks to the public, worker or environment as defined below, risk management is an integral part of establishing site strategies, setting priorities and sequencing of work.

The guidance document (section C.1) defines "urgent" risks to the public, worker and environment by stating that the following adverse impacts would be expected to occur in less than one year:

- Public: Death or injuries/illnesses involving permanent, irreversible effects such as permanent total disability or chronic diseases.
- Worker: Death or injuries/illnesses resulting in permanent total disability, chronic or irreversible illnesses, or extreme overexposure.
- Environment: Catastrophic damage

As previously mentioned, two of the major strategies employed in the development of the Discussion Draft were to: 1) maintain the Site's safety envelope ensuring the continued safety of Site workers, the public and the environment and therefore avoiding the development of future "urgent" risks, and 2) eliminate the highest priority risks (from the Site's perspective) first. Those activities required to maintain the Site's safety envelope were preferentially funded over all other activities. These activities include building landlord functions and maintenance, operation and maintenance of utilities, and other basic infrastructure requirements (e.g. security). The next activities to be funded include the Site's highest priority risks. The combination of maintaining the safety envelope and management of the Site's highest priority risks comprise the minimum operating level for the Site.

The 1994 Plutonium Working Group Report on Environmental, Safety and Health Vulnerabilities Associated with the Department's Plutonium Storage stated that "Rocky Flats has many of the most significant plutonium vulnerabilities in the DOE complex." The accomplishments to date (venting of drums, tank draining, liquid stabilization, repackaging of plutonium, SNM consolidation, etc.) have made dramatic progress towards reducing the plutonium related safety and health vulnerabilities.

Activities currently underway which addresses the Site's highest priority risks identified by the Site Work Breakdown Structure Prioritization include development and operation of SNM liquid stabilization process, development and operation of existing and new plutonium metal/oxide stabilization process, development and operation of solid residue elimination process, installation and operation of enriched uranium decontamination process, and operation of enriched uranium process/enriched uranium removal. Completion of these activities will significantly reduce the

potential risk to health and safety of the worker, public and environment posed by the presence of large amounts of Special Nuclear Material in various forms on the Site.

## 2.3 Prioritization

A qualitative prioritization system was designed and established consistent with Assistant Secretary Alm's seven guiding principles and the major strategies employed in this Discussion Draft.

The purpose of the prioritization system is to establish a tool to support Site decisions on project funding, scopes, schedules and logic sequences needed as the result of budgetary constraints or surpluses while maintaining project and end state integrity, and ensuring the safety of Site workers and the public. Prioritization is a key Site management system as it affects the ability to perform meaningful work, reduce risk and mortgage costs, maintain regulatory compliance, and to reach the identified end state.

The use of prioritization systems for the budget process is not new to Rocky Flats. The current system has been based on the experience gained with previous systems. For the FY98 budget submission, RFFO used a multi-factored, weighted, numerical ranking system in order to develop a prioritized listing of the WBS level 4 elements. This listing identified WBS elements which were classified as "Basic Operating and Essential Services" (BOES) and exempted these from any prioritization. Prioritization was then applied to the non-BOES WBS elements and summarized to the Activity Data Sheet (ADS) level to create a list of "FY1998 Discretionary Funding With Optimization Recommendation" which showed funding priorities for a planning case, a target case, and a decrement case. This level of detail was adequate to set the Site toward the direction of closure. Actual implementation of the Closure Project requires a system applied at a lower level of the Work Breakdown Structure (WBS) that includes greater differentiation and in-depth consideration of logic ties between WBS elements.

For FY99, the Site increased the prioritization sensitivity by developing a similar prioritization method but applied at WBS level 6 using six prioritization categories. This system considers risk as an integral part of setting priorities, and correlates to the risk discussions provided in the Project Baseline Summaries included with this plan. Under this new prioritization methodology, there is a Minimum Operating Level (MOL) that provides for maintenance of the Site in a safe, secure, and compliant state with little or no risk reduction or mortgage reduction work taking place. This MOL is composed of those level 6 WBS elements that provide the essential functions required by regulatory drivers (compliance) and by the requirement to maintain facilities in a safe and secure state. The MOL elements are the first five categories below (in no rank order). Category 6 elements are funded by limited discretionary funding and must, therefore, be prioritized.

MOL	Category 1	Legacy Costs
	Category 2	Fixed Activity Costs
	Category 3	Urgent Risk Mitigation Costs
	Category 4	Corporate Operating Costs
	Category 5	Enforceable Compliance Costs

The discretionary work in Category 6 was then prioritized in a two step process.

*Step 1* Order the Category 6 WBS elements (Risk and Mortgage Reduction, Closure Costs and Other Discretionary items) elements based upon the following prioritized ranking:

- 1 Risk Reduction
- 2 Mortgage Cost Reduction
- 3 Sustainability
- 4 Remediation and Contamination Control
- 5 Compliance Enhancement
- 6 Performance Improvement
- 7 Overhead Control

Since all Category 6 work elements satisfy more than one objective, both a primary and a secondary ranking were assigned to each element.

*Step 2* Perform final review and approval recognizing impacts of regulatory drivers, key activity interdependencies, and other factors. Review the preliminary rankings with a small group of key RFFO and K-H managers based upon expert opinion and striving for consensus. This process creates a judgment link in order to take into account factors that cannot be accommodated in the model. Such factors include the sequence of work, task interdependencies, knowledge of specific facility issues, knowledge of specific stakeholder issues, risk analysis studies, as well as other programmatic information. Often, the only way for these factors to be recognized in a prioritization methodology is for technically knowledgeable managers to be involved.

The priority rankings that result from any such process will not be used with inflexibility. For example, a funding change will not necessarily result in blindly adding or dropping the highest or lowest ranking WBS elements. It may be more appropriate to reduce the level of several elements rather than eliminate or defer all of one or more elements.

The process could be applied at any level of the WBS. The level chosen must be low enough to allow MOL elements to be distinguished from discretionary elements. To ensure adequate discrimination, Rocky Flats chose to do its ranking at level 6 of the WBS.

A summary of the Site FY99 budget prioritization process for the Category 6 activities for FY98 through FY2000 is shown in Table 2-1. Many of the current discretionary items will become MOLs at later points in time. For example, the Closure Cap is discretionary in FY98 through FY2000 because its predecessor activities have not been completed. Eventually, construction of a cap is expected to be required as a key piece of the Site's Closure Strategy.

The Site's projects are comprised of interrelated activities that are largely interdependent. In general, the Site projects are composed of activities that have a mixture of categories and do not, therefore, lend themselves to prioritization as an entire project.

Since almost all of the 32 Site projects are interlinked based upon the Site integrated schedule, the described end state, and the work logic, Site work must be planned and implemented in a manner consistent with the overall Site network logic and not on the basis of a pick and choose selection of projects.

### 3.0 SCOPE, COST, AND SCHEDULE

This section describes the scope, cost, and schedule of the Rocky Flats Discussion Draft (Discussion Draft). The methodology used to develop the cost estimate and schedule is also described. Summary costs and schedule information for each of the five cases can be found in this section. More detailed spreadsheets and schedules for the five cases, organized by the Site Work Breakdown Structure (WBS), can be found in Volume II of this Discussion Draft. Volume III of this plan contains additional information on scope, cost, and schedule in the form of Project Baseline Summaries (PBSs) for Cases 1 and 2 only.

Under all five cases evaluated, the same end state for the Site is eventually achieved. The end state is marked by the following attributes:

- All Special Nuclear Materials (SNM) have been shipped offsite
- All facilities, except those deemed for economic reuse are demolished
- All environmental remedial actions required under RFCA are complete
- All radioactive waste generated is disposed offsite
- The future land uses enabled by the cleanup are open space or industrial/commercial use

The major distinguishing feature among the five cases is the time by which the end state is finally achieved. This time is dependent, to a large extent, on the maximum annual funding assumed to be available. Section 1, Table 1.1 provides the annual funding levels for each of the five cases. As Table 1.1 demonstrates, the levels of annual funding for a number of the cases differ. The major distinguishing feature for Case 4 and Case 5 as compared to Cases 1, 2, and 3, is that no Interim Storage Vault for plutonium is built at Rocky Flats. Instead, an aggressive offsite shipping strategy for plutonium is assumed. Case 4 assumes the same funding as Case 2, while Case 5 assumes additional funding above Case 2 funding levels for three years.

### 3.1 Scope of Work

The scope of work to be performed to achieve the end state under the five cases is described below.

#### Cases 1, 2, and 3

The following key activities would occur as part of the project:

#### *SNM Stabilization, Consolidation, and Storage Activities*

- A total of 6,600 kilograms of plutonium metal and 3,200 kilograms of plutonium compounds would be stabilized, packaged for long-term storage, and placed in a new onsite Interim Storage Vault.
- A total of 3,100 kilograms of plutonium contained within 106,000 kilograms of residue materials resulting from past production activities would be stabilized and repackaged, and the resulting transuranic (TRU) waste would be shipped to DOE's Waste Isolation Pilot Plant (WIPP) for disposal.
- A total of 6,700 kilograms of enriched uranium would be packaged and shipped offsite.

### *Facility Decommissioning Activities*

The over 700 facilities and structures would be deactivated and demolished. Any new facilities constructed to temporarily manage radioactive wastes and plutonium would also be deactivated and demolished once the wastes and plutonium are shipped offsite. Nine facilities designated for reuse would not be demolished as part of this plan.

### *Waste Management Activities*

- Low-level (LLW) and low-level mixed waste (LLMW) would be treated and shipped offsite to either commercial or DOE facilities.
- New LLW management facilities and a TRU waste staging/shipping facility would either be constructed onsite, or existing facilities would be retrofitted to accommodate these activities.
- Hazardous and sanitary waste would be shipped offsite for treatment and disposal.
- Clean construction debris from demolition would either be used as clean fill and disposed onsite, or disposed offsite as industrial fill.
- Some TRU waste would be shipped offsite to the Idaho National Engineering Laboratory for treatment, prior to disposal at WIPP.
- All TRU waste would be shipped to WIPP for disposal.

### *Environmental Cleanup Activities*

The following land uses would be allowed as a result of environmental cleanup:

- Approximately 6,100 acres would support open space uses. Any of the open space acreage could support future commercial uses, if desired, although the expectation is that only the current industrial area would have industrial or commercial reuse.
- Approximately 100 acres would be covered by man-made earthen caps that would be placed over any areas of contamination that remain, such as old landfills, to inhibit contaminant migration. These 100 acres would be restricted open space.
- Approximately 89 environmental remedial actions would be conducted to reduce or remove the sources of volatile organic and/or radiological contamination.

Sources of contamination would be removed or controlled throughout the life of the project and after achievement of the end state, ensuring that State-mandated water quality standards were met. Continuous environmental monitoring would be performed throughout the life of the project (and beyond) to verify that the water quality standards were continuously met.

The interrelationships among the major activities of Cases 1, 2, and 3 are diagrammatically represented in Figure 3-1.







### Cases 4 and 5

The key activities performed under Cases 4 and 5 are identical to Cases 1, 2, and 3 as described above with one exception. A new onsite Interim Storage Vault for plutonium would not be constructed. Instead, plutonium pits and other components would be shipped to DOE's Pantex facility, and plutonium metals and oxides would be stabilized, repackaged, and then shipped to an offsite repository.

The interrelationships among the major activities of Case 4 and Case 5 are diagrammatically represented in Figure 3-2.

## **3.2 Cost and Schedule**

As described above, this Discussion Draft evaluates five cases with similar scopes of work. The major differentiating attribute among the cases is the level of annual funding assumed to be available to achieve the end state. Therefore, the major distinguishing features among the cases are the time and total estimated cost to accomplish the scope of work. This subsection presents the cost and schedule information for each Case, in summary fashion.

### Case 1

Case 1 represents the lowest annual funding assumed for the five cases. Under this annual funding level, the scope of work discussed in Section 3.1 is accomplished by the end of FY2027. Shipment of SNM to offsite repositories is completed by FY2013, two years before DOE's stated goal of 2015 in the Rocky Flats Cleanup Agreement (RFCA). All major nuclear facilities are demolished by FY2017. The total cost of this case is estimated to be \$16.1 billion.

Figures 3-3 and 3-4 represent the funding profile for Case 1 by major Site activity and project, respectively. Tables 3-1 and 3-2 represent summary level costs and schedules for Case 1.

### Case 2

Case 2 represents the middle annual funding assumed for the five cases and is the reference case. Under this annual funding, the scope of work in Section 3.1 is accomplished by the end of FY2014. Shipment of SNM is accomplished by 2014. The major nuclear facilities are demolished by FY2010. The total cost for this case is estimated to be \$9.0 billion.

Figures 3-5 and 3-6 represent the funding profile for Case 2 by major Site activity and project, respectively. Tables 3-3 and 3-4 represent summary level costs and schedules for Case 2.

### Case 3

Case 3 is a special case that was constructed to examine at what funding level the majority of the cleanup of Rocky Flats could be accomplished in ten years, employing the improved cost estimates contained within this Discussion Draft versus the draft TYP 1.0 of July 1996. Under this case, shipment of SNM is accomplished by FY2014. It is important to note that shipments could begin earlier if a repository were available, but this case reflects more closely the timetables for SNM removal stated in RFCA. The major nuclear facilities are demolished by FY2007. The total cost for this case is estimated to be \$8.2 billion.

Figures 3-7 and 3-8 represent the funding profile by major Site activity and project, respectively. Tables 3-5 and 3-6 represent summary level cost and schedules for Case 3.

#### Case 4

Case 4 is a special case that was constructed to examine the impacts of greatly accelerating the shipment of SNM to offsite repositories by FY2005. In Cases 1, 2, and 3, it was assumed that SNM would be shipped to offsite repositories beginning in FY2010 and ending in FY2013 following storage in a new Interim Storage Vault that would be constructed at the Site. Conversely, under Case 4, no such facility is constructed. Rather, some facility upgrades to Building 371 are assumed and the SNM would predominantly be stored there until it is shipped offsite. The major nuclear facilities are demolished by FY2010. The total cost for this case is estimated to be \$8.4 billion.

Figures 3-9 and 3-10 represent the funding profile by major Site activity and project, respectively. Tables 3-7 and 3-8 represent summary level costs and schedules for Case 4.

#### Case 5

Case 5 is another special case that was constructed to examine the impacts of both accelerated shipment of SNM to offsite repositories and additional funding above Case 2 funding targets for FY1998 through FY2000. Additionally, Case 5 assumed unrestricted privatization funding. As in Case 4, no new Interim Storage Vault is built, but the increase in funding allows for offsite shipment of SNM to be completed in FY2004 which is a year earlier than Case 4. The initial increased funding for the first three years also allows the Site to fully fund all recently negotiated RFCA milestones and DNFSB commitments, thus eliminating the need to renegotiate them. In addition, DOE, RFFO costs reflect a 5 percent per year efficiency gain. The major nuclear facilities are demolished by FY2007. The total cost for this case is estimated to be \$7.3 billion.

Figures 3-11 and 3-12 represent the funding profile by major Site activity and project, respectively. Tables 3-9 and 3-10 represent summary level costs and schedules for Case 5.

### **3.3 Cost and Schedule Methodology**

This section addresses the methodology and approach used to develop the cost estimate and schedule for the Discussion Draft. The cost, schedule, and work scope for the Discussion Draft are integrated by means of a common sitewide WBS.

#### Work Breakdown Structure (WBS)

The WBS identifies all Site work and consolidates it into work segments. Each work segment is dissected into successive levels of detail until adequate management control is possible and individual tasks are fully defined, quantified, estimated, and scheduled. The WBS provides the basis for work scope definition, cost estimating, schedule projections, and reporting of all Site work.

The top two levels of the WBS represent the Site Vision as set forth in the preamble to the RFCA and the end state to be achieved. The third level divides the work into cleanup and closure segments to achieve the end state. Within a cleanup or closure segment (fifth level of the WBS) the work is divided by facility cluster, Individual Hazardous Substance Site (IHSS), capital project, or associated waste management or SNM work processes.

*The Rocky Flats WBS:*

- Depicts the hierarchical relationship between work elements, reinforces mission-critical and integrating themes, and emphasizes areas for progress toward the Site of the future.
- Supports grouping of work elements into the 32 Projects that the Project Baseline Summary (PBS) describes. The crosscut in Volume I, Section 1, Table 1-2 provides specific details.
- Supports crosscut reporting by program area, source of funds, DOE Activity Data Sheet (ADS), type of work, responsible organization, performing organization, subcontractor, and others.
- Supports the network logic scheduling of work and facilities planning for completion of performance measures by incorporating the performance measure into the schedule logic work flow that has been planned for its completion.
- Facilitates communication of work completion, ongoing activities, and planned work with DOE within Kaiser-Hill and the Site subcontractors, and with stakeholders and regulators.

Cost Estimating

The cost figures included in the Discussion Draft are categorized as planning estimates. The DOE Cost Guide, Volume 6 states that a planning estimate has an accuracy range from -50 percent to +100 percent. The cost estimates included in this document are at least within that range of accuracy and are as credible as possible for this stage of project definition. The FY1997 cost estimates are based on data contained in the Basis of Estimate Software Tool (BEST) which is an activity based cost estimating tool developed by the Site. In addition, the Site is currently in the process of developing activity based cost estimates for the life-cycle of the Site. These more accurate cost estimates will be incorporated in the final version of the Discussion Draft. The overall objective is to obtain a cost accuracy range from -25 percent to +40 percent for the overall closure project, with budget quality accuracy for FY1998 and FY1999.

The estimated cost and time duration required for each work activity in the schedule reflect the associated work scope. The baseline costs in Case 1 do not drop as rapidly as in Case 2 because the reduced funding does not provide as many liability reduction activities. The funding availability in the few initial years drives the overall project duration in both cases. In Case 2 the work from FY1997 through FY2004 is funding constrained; work beyond FY2004 is schedule constrained. In Case 1 the work from FY1997 through FY2013 is funding constrained; work beyond FY2013 is schedule constrained. The baseline costs in Case 5 drop more rapidly than Case 1 and Case 2. This reflects the liability reduction that is possible with the increased funding in FY1998 through FY2000. Even with the additional funding in the early years, Case 5 is funding constrained until FY2004. Case 5 is schedule constrained after FY2005.



### Cost Estimating System

The Cost Estimating System consists of a database with a cost estimate for each element of the WBS. These costs estimates are either annual operating costs or one-time costs. Putting the individual costs for each WBS element into a database allows the costs to be sorted and summarized into any number of options. The database provides a mechanism for reflecting and documenting changes as additional detail and information become available.

The cost estimate for the Discussion Draft was summarized by the WBS (see the spreadsheets in Volume II). Additional summarizations and crosscuts of the cost data were done to complete the Project Baseline Summary (PBS) documentation requested by DOE Headquarters for Cases 1 and 2.

### Cost Estimating Approach

The cost estimates cover all activities required to complete the activities at Rocky Flats, including contingency and DOE Rocky Flats Field Office (DOE, RFFO) costs. The approach used to estimate each category of cost is addressed later in this document.

The cost estimates in this document have been developed by knowledgeable technical staff. Professional cost estimators assisted in the development of the cost estimates and provided an overall review for consistency and credibility. To ensure that all costs were included but not duplicated, the cost estimates were developed at levels 5, 6, and 7 of the WBS.

The cost estimates are based upon assumptions and data developed by the technical groups that have responsibility for managing the work. These assumptions, technical details, and specific quantities are identified in other parts of this report and in the basis of estimate.

### Direct Cost Estimates

Direct costs are those costs associated with each work activity. An example of a direct cost would be the cost required to fill a drum with waste. The direct cost is the cost of the labor hours, plus the incremental cost of equipment, and the price of the drum. The direct cost is the basis from which all other elements of costs are derived.

The direct costs for the Discussion Draft were provided by technical program staff. For some areas, (e.g., facility decommissioning, and environmental restoration), a detailed estimate was developed for an individual building or IHSS, and the costs were extrapolated for similar buildings or IHSSs.

In some instances costs were entered into the database at WBS Level 7. In general, however, they were entered at Levels 4, 5, and 6. Where possible, the quantities and volumes of work were based on projections provided by the current operating programs. Where unit costs were used, they were a combination of historical averages, cost benchmarks, and estimator judgment.

### Indirect Cost Estimates

Indirect costs are defined as those costs that are necessary for the direct activities to be completed but which cannot be assigned to any single activity because of their general nature. The

requirements for indirect costs change throughout the time required to complete the Site Discussion Draft. The indirect activities are based on the FY97 budget for each WBS element. The estimated cost for each subsequent year changes to reflect the changes in the direct work. A 5 percent reduction per year in these areas was assumed to the extent possible.

### Escalation

Escalation is the correction applied to cost estimates to account for the impact of inflation. All of the costs were estimated in FY97 dollars. An escalation factor of 3 percent was applied to develop FY98 dollars. Beyond FY98, a 2.7 percent escalation factor was applied to the estimate.

### Contingency

Contingency is a specific provision for unforeseeable elements of cost within a defined project scope. Contingency is used to cover costs resulting from incomplete design, unforeseen and unpredictable conditions, and uncertainties within the defined project scope. Contingency does not include provisions for out-of-scope work and baseline changes.

The application of a contingency cost covers the entire life-cycle of a project from the feasibility studies through execution to close-out. A contingency analysis was performed at the lowest level of the WBS to present a true indication of the cost risk involved with the project. The contingency was applied as a single-line entry in the cost estimate summary spreadsheets. This section provides the approach used to determine the contingency.

The DOE Cost Estimating Guide, Volume 6 provided guidance for the analysis and application of contingency for cost estimates prepared for DOE. Although the guide does not specifically address process engineering, operations, or maintenance, the general philosophy of the guide was appropriate for those items in the context of Site closure as a single project. The contingency reflects the cost risk associated with activities planned in each fiscal year. The overall contingency applied to the cost estimate ranges from 15.2 percent in Case 5 to 16.7 percent in Case 1.

The methodologies established for the analyses of contingency requirements for the Discussion Draft cost estimates were as follows:

- *Construction Project Costs* - Approximately a 25 percent contingency was added to construction project estimates to cover potential cost increases due to incomplete design, unforeseeable and unpredictable conditions, or uncertainties within the defined project scope. The four factors that were considered in determining the contingency for construction items are:
  1. Project complexity
  2. Design completeness
  3. Market conditions
  4. Special project or site conditions
- *Environmental Restoration (ER) Costs* - Estimates for ER activities cover two phases: The assessment phase and the remediation and cleanup phase. The method used to determine contingency cost was dependent on the phase. The assessment phase of an environmental

restoration project has a high degree of uncertainty regarding the technical characteristics of the regulatory issues, the site being evaluated, and the level of stakeholder concern. However, there is a low cost risk, so a contingency of 10-20 percent was applied. The cleanup phase resembles a construction project and a 25 percent contingency was applied.

- *Deactivation/Decommissioning Costs* - The contingency rate for facility deactivation and decommissioning was 30-35 percent because of the uncertainty associated with the cost factors. The contingency rate takes into consideration the following five cost factors:
  1. Availability of technology to reach the desired end state
  2. Unknown levels and amounts of contamination to be removed before demolition
  3. Acceptable levels of contamination for materials to be left in place
  4. Uncertainty of schedules for deactivation and decommissioning
- *Operations and Maintenance* - The cost estimates for operations and maintenance were based on historical costs for similar activities. A contingency ranging from 0 to 20 percent was included.
- *Indirect Costs* - Contingencies were considered for indirect cost items that were proportional to external causes and were commensurate with the external drivers.

#### Scheduling Approach

Schedules were developed using the same scope identification techniques as the cost estimates to ensure consistency between the estimates and schedules. Schedule activities were identified to level 4, 5, 6, or 7 of the WBS and checks were performed to verify that the entire WBS scope was included in the schedules and to eliminate duplicate activities.

The scope of work associated with each building, area, or process was defined and an activity duration was assigned. A logical sequence for executing the activities within a building, area or process was developed to form a Critical Path Method schedule. Based upon dependencies created by work logic, resource constraints or funding limitations, the schedules were then linked to other schedules required to meet the objectives.

#### Cost/Schedule Integration and Resource Leveling

After the initial critical path schedule was produced, it was reviewed by senior scheduling staff and task team leaders to verify assumptions, Bases of Estimate (BOE), logic ties, activity duration, float, start and completion dates, and overall presentation. Changes were made to improve activity relationships and refine overall duration of the effort.

Then resources (costs) were loaded into each schedule activity from the cost estimate. For each schedule activity, the cost was identified as either one-time (cost remains constant regardless of activity duration) or unit-based (cost increases or decreases as activity duration increases or decreases, usually expressed as cost per year).

After the schedule and cost estimates were integrated, an available funding profile was entered into the system. The annual funding level from EM was provided in Attachment K of the Ten Year



Plan Guidance issued by DOE, HQ on January 22, 1997. An additional \$44.0 Million annual funding from Defense Programs was assumed until the Pu residues are stabilized and the SNM is in the new Interim Storage Vault or shipped offsite. Privatization funds were included in FY98 and FY99 for Cases 1, 2, 3, and 4. Case 5 assumed unrestricted privatization funds. Using the leveling capability of the system, activity start and completion dates were accelerated or delayed until the activities could be completed within the imposed limitations of funding. In some instances leveling could not achieve the desired funding profile, and activity duration had to be adjusted on an individual basis. The resource-leveling step did not alter the basic logical structure of the schedule; adjusting activity duration required analysis of the critical path to ensure the basic logic structure remained sound. In instances where the original cost and schedule profile exceeded the funding ceiling in any given year, extension of work into the out-year(s) to accommodate the funding limitation had the effect of lengthening the overall completion time of the project.

## 4.0 ANALYSIS

This section compares the five cases described in Section 3 in terms of their annual funding profiles, overall closure project cost, schedule, and rate of risk reduction. It also discusses the key factors which influence overall cost and schedule, i.e., the annual funding rate, mortgage reduction, escalation, and efficiency of work performance (Subsection 4.1). The timetable and sequencing of seven key risk reduction activities for the five Cases are described in Subsection 4.2; workforce projections and some of their implications in Subsection 4.3; and, finally, the chief differences between the latest (1996) Baseline Environmental Management Report (BEMR), this Discussion Draft, and the July 1996 Draft TYP 1.0 in Subsection 4.4.

The comparison of the five cases leads to the following major conclusions:

- Case 1, which reduces the annual funding level over the eight year period FY99 - FY2006 by approximately \$50 million from the Case 2 level, would significantly reduce the discretionary portion of the Rocky Flats operating budget available for risk reduction, thus prolonging the end state achievement until FY2027, and increasing the total project cost to \$16.1 billion dollars.
- Case 2, which is the basis for the Rocky Flats FY99 Budget Call, would achieve the Site end state by FY2014 at a total cost of approximately \$9 billion.
- Case 3, which increases the annual funding level over Case 2 during the five year period from FY98 - FY2002, would accelerate risk reduction in several key areas: safe storage of plutonium in a new vault (3 years), shipment of all waste for disposal (4 years), and demolition of all nuclear facilities (3 years). With Case 3's higher early annual funding, total project cost is reduced by \$800 million versus Case 2; and the Site end state would be 85 percent achieved by the end of FY2006.
- Case 4 accelerates by eight years versus Case 2 (from FY2014 to FY2005), the removal of plutonium from Rocky Flats and achieves some other efficiencies over Case 2. But, for lack of an additional \$50 million per year over Case 2's early annual funding level, it does not permit the significant acceleration of other reductions in risk and achievement of the Site end state.
- Case 5 offers significant advantages over all other cases. By combining Case 3's increase in annual funding (but for only 3 years) and Case 4's assumption of near term offsite plutonium shipment, Case 5 eliminates the need for a new vault, allows significant acceleration of practically all risk reduction activities, accelerates achievement of the Site end state by five years versus Case 2 (to FY2009), and is 90 percent completed by FY2006. It is also fully compliant with the recently negotiated RFCA milestones and current DNFSB commitments and has a total project cost of only \$7.3 billion, almost \$2 billion less than the Case 2.

### 4.1 Impacts of Annual Funding Levels

Figure 4-1 shows the annual funding level, duration, and total closure project cost for each of the five cases. Table 4-1 compares the estimated completion dates for key activities common to the five cases.

**Table 4-1**  
**Fiscal Year Completion of Key Activities for Cases 1, 2, 3, 4, and 5**

<b>Key Activity</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
Total cleanup cost	\$16.1B	\$9.0B	\$8.2B	\$8.4B	\$7.3B
End state <sup>1</sup> achieved	2027	2014	2014	2013	2009
Plutonium liquids drained and stabilized	1999	1999	1999	1999	1999
All plutonium shipped offsite	2013	2013	2013	2005	2004
All plutonium stored in new vault	2013	2006	2003	N/A	N/A
All waste shipped for disposal	2027	2012	2008	2012	2009
All environmental remediation actions complete	2027	2014	2010	2013	2009
All major nuclear facilities demolished <sup>2</sup>	2017	2010	2007	2010	2007

<sup>1</sup> End state occurs one year earlier than project completion, which occurs after subsequent minor infrastructure is removed

<sup>2</sup> Excludes facilities designated for future reuse

As Table 4-1 shows, one of the most apparent differences between the cases is that Case 1 takes approximately 13 years longer and costs over \$7 billion more than any of the other four cases. The principal reason for this difference is that the Case 1 annual funding level (see Section 1, Table 1-1) is only slightly above the level of funding required just to maintain the Site in a safe and secure state and maintain the Site infrastructure. As a result, the small amount of discretionary funding available for risk reduction, mortgage reduction and cleanup when combined with the effects of escalation and deterioration of the infrastructure, reduces the efficiency of total project execution and prolongs project completion.

Case 2 has an annual funding level of \$50 million more than Case 1 over the eight year period FY99-FY2006. This higher level of funding represents a large percentage increase (approximately 30 percent) in the discretionary funding available for real risk reduction and cleanup. Cleanup, therefore, proceeds at a faster and more efficient pace.

The advantages of Case 3 over Case 2 are less apparent, but they are significant. In both cases, the most urgent risk reduction activity—draining and stabilizing plutonium liquids—is accomplished in FY99. Achievement of the Site end state occurs in FY2014 in both cases due to the assumption that SNM is not shipped offsite until 2013 in accordance with DOE's goal in RFCA. However, Case 3's FY2014 end state achievement date masks the fact that Case 3's additional \$50 million in annual funding allows completion of all major components of cleanup by FY2010 with a cost savings of \$800 million over Case 2. In fact, the end state in Case 3 is nearly achieved (85 percent) by FY2006 (see Table 4-2).

Case 4 is similar to Case 2 except that an onsite Interim Storage Vault (ISV) for SNM is not constructed due to the assumed near-term shipment of plutonium directly to receiver sites. Consequently, much of the funding made available by not building an ISV, as well as the funding saved by elimination of recurring safeguards and security costs, can be used to accelerate other risk reduction activities. This slightly faster completion of remedial actions, D&D, and related waste shipment allows the end state in Case 4 to be achieved by FY2013.

Case 5 is faster, cheaper, and better overall than any other case. It combines Case 3's additional funding over the Case 2 annual funding level (although Case 5 has increased funding for only three years versus Case 3's five years) and Case 4's assumption of near-term offsite plutonium shipment, which eliminates the need for a new vault. Case 5 also allocates a 5 percent per year reduction to DOE, RFFO oversight costs to risk reduction activities. Consequently, Case 5 allows significant acceleration of practically all risk reduction activities; it accelerates achievement of the Site end state by five years versus Case 2 (to FY2009); and it is 90 percent complete by FY2006. It is also fully compliant with the recently negotiated RFCA milestones and current DNFSB commitments and has a total project cost of only \$7.3 billion, almost \$2 billion less than Case 2.

**Table 4-2**  
**Status of Site in FY2006**  
(Estimated % complete of key activities)

KEY ACTIVITY	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Plutonium offsite shipment	50%	50%	50%	100%	100%
Pu Liquid and Pu metal and oxide stabilization	100%	100%	100%	100%	100%
Pu residue stabilization	30%	100%	100%	100%	100%
Transuranic waste shipments to WIPP	63%	95%	99%	96%	99%
Low-level waste shipments offsite	15%	48%	75%	42%	75%
Estimated percent complete of nuclear facilities deactivated	24%	47%	94%	47%	100%
Nuclear facilities demolished	15%	23%	77%	15%	77%
Total environmental remediation actions	35%	58%	92%	77%	82% <sup>1</sup>

<sup>1</sup> Since the metric used for accomplishment of ER work is "number of remedial actions completed", the two larger actions completed by FY2006 in Case 5 do not "count" as much as the larger number of smaller actions completed by FY2006 in Case 3. Further explanation at the end of Section 4.1

The following adds to the comparison of the five cases by a discussion of the major contributing factors.

#### Major Contributing Factors to Case Differences

A modest increase in the annual funding level early on has a profound effect on overall project cost and duration. There is a substantial difference of 18 years between the case with the earliest end state achievement (Case 5, FY2009) and the case with the latest cleanup date (Case 1, FY2027). With a total cleanup project cost of \$7.3 billion, Case 5 is also about \$9 billion cheaper than the \$16.1 billion price tag of Case 1. The large cost and schedule advantage of all other Cases over Case 1 is due to their approximately \$50-\$100 million increase in annual funding over the Case 1 level for three to eight years. Figure 4-2(a) illustrates the substantial savings (\$6.1 billion) by investing an additional \$50 million dollars per year for the period FY99-FY2006 in Case 2 versus Case 1. Figure 4-2(b) shows an even greater savings (\$8.8 billion) for Case 5. Comparing Case 5 with Case 2, Figure 4-2(c) shows that Case 5's additional funding annually for three years produces an outyear savings of \$1.7 billion. The reasons for this large leveraging effect of early higher annual funding are:

- The mortgage (cost of maintaining the buildings that store or handle radioactive and other hazardous materials; safety; security; DOE and K-H team management; and other infrastructure and support operations) consumes approximately 60 percent of the annual

budget (almost \$440 million out of the \$620 million FY97 budget). As Figure 4-3 shows, this leaves about 40 percent of discretionary funding (about \$180 million in FY97) which can be applied to work that reduces risk and mortgage costs and furthers the cleanup. Therefore, while Case 2's additional \$50 million annually from FY99 - FY2006 represents a 9 percent increase over the Case 1 annual funding level, it represents almost a 30 percent increase in the annual discretionary funding available to accomplish risk reduction and mortgage reduction during those years.

- Many elements of the already aged nuclear facilities and infrastructure (e.g., roofs, electrical distribution lines, roads) continue to deteriorate over time and require more effort to repair or restore in the outyears. The longer it takes to complete closure, the greater the cost to maintain deteriorating infrastructure.
- The compounding effect of escalation consumes a significant portion of available funding in the outyears (Figure 4-4).
- The management and technical support required to plan, integrate, and oversee all work remains in place substantially longer for Case 1 than for the other cases (Figure 4-5). If such support is maintained over a longer period of time to accomplish essentially the same scope of work to achieve closure, management and technical support will consume a larger percentage of the total project cost.
- In addition to the added cost of maintaining management and technical support, the efficiency of performing work decreases as the work is stretched out over time because of standard industrial factors such as mobilization, maintenance, down time, and additional workforce training. Conversely, compressing work schedules—even to the point of selectively using additional multiple shifts—can significantly increase efficiency.

Early offsite shipment of plutonium is a major factor in reducing cost and compressing project schedule. Case 4 is a variation of Case 2 which incorporates the assumption that a receiver site (Pantex) will be approved in time to permit the shipment of plutonium pits offsite beginning in FY97 and ending in FY99, and that plutonium metals and oxides will be shipped offsite beginning in FY2002 and ending in FY2005. These shipments eliminate the need to build a new ISV at Rocky Flats or to make extensive upgrades to Building 371. The majority of the funding planned for those purposes can be applied instead to accelerating risk reduction and mortgage reduction projects, with a corresponding decrease of almost one year in closure-project duration and about \$600 million in the total cleanup project cost versus Case 1.

RFCA compliance is also a factor. Case 5 is fully compliant with the recently negotiated RFCA milestones. Case 5 was developed to be compliant with RFCA, which placed greater schedule priority on early, significant environmental remediation (such as the T-1 trench). Case 3 was developed before recent RFCA milestones were negotiated and deferred significant early environmental cleanup in favor of higher priority risk reduction. Therefore, Case 3 placed greater schedule priority on a number of smaller remediation actions inside the protected area, which hastened deactivation of several buildings and reduced their associated baseline costs, but it delayed completion of significant remedial actions until almost all high priority plutonium risk reduction activities were completed.

As an aside, a number of efforts are underway to examine how mortgage costs can be reduced more rapidly. These efforts include:

- Closer examination of the relationship between the phases of nuclear facility deactivation and the cost of operations and maintenance
- Reexamination of the Authorization Bases which describe the safety envelopes required for nuclear facilities, which could lead to greater efficiencies through better tailoring of the safety envelope to existing conditions
- Continuous reexamination of mortgage costs by the use of reengineering teams, bench-marking activities, and the innovative use of contractor performance measures and savings reimbursement

## **4.2 Comparison of Key Activity Timetables**

Figure 4-6 amplifies the above comparison of the five cases by showing the timetables of the seven key programmatic risk reduction areas that contribute to the end state. The activity durations reflect the differences in the rate of performance as well as postponement in start times based on differences in priority. The following observations pertain to these specific activities:

### Stabilize Plutonium Liquids

The stabilization of plutonium liquids, the highest priority risk reduction effort at the Site, is not portrayed on Figure 4-6, because it occurs in the same time frame (FY97 - FY99) for all five cases.

### Store Plutonium in New, Interim Storage Vault

The presence of a large amount of plutonium and stored transuranic waste in 12 buildings is the most significant contributor to high Site mortgage costs and is, therefore, a high priority for consolidation. Consequently, this activity is fully funded as one of the highest priorities in Cases 1, 2, and 3. As explained above, no vault is built in Case 4 or Case 5, which allows more funding to be applied earlier to stabilization of plutonium and preparation for offsite shipment.

### Ship Plutonium Pits, Components, Metals and Oxides to Offsite Repositories

The FY2013 completion date of shipping plutonium pits, components, metals and oxides offsite is the same for Cases 1, 2, and 3, because of DOE's commitment in RFCA to remove all plutonium from the Site by FY2015. Both Case 4 and Case 5 assume the early availability of receiver sites for these materials with offsite shipments beginning in FY97 and completed by FY2005 in Case 4 and in FY2004 in Case 5.

### Stabilize and Repackage Residues

Stabilizing and repackaging residues has a high priority in all cases. However the high cost of this effort requires its completion to be postponed until FY2013 in Case 1 to allow funding of the higher priority plutonium liquids stabilization, plutonium materials stabilization and consolidation, and offsite shipment. The increased level of funding under Cases 2 and 4 provides for completion of this high priority effort in FY2006 and FY 2005 respectively, and the still higher level of

funding in the early years under Case 3 and Case 5 allow acceleration of this effort by another three years FY2002.

#### Demolish Nuclear Facilities

D&D and demolition of nuclear facilities is delayed more than ten years under the reduced funding of Case 1, until FY2017, which does not meet the current goal in the RFCA. Because of the large amount of funding required for D&D and demolition, they are delayed in favor of higher priority efforts such as plutonium risk-reduction activities, which consume available early funding. Once delayed, D&D and demolition take longer to complete, because the costs of escalation, reduced opportunities for achieving work efficiencies, prolonged mortgage costs, and extended management and technical support described above dramatically reduce the amount of available funding in later years. Cases 2, 3, 4, and 5 would hasten the completion date for this activity to between FY2007 and FY2010.

#### Ship All TRU Waste to WIPP

Shipment of TRU waste to WIPP is scheduled to begin in FY98, coincident with WIPP's planned opening. Final shipments of TRU waste cannot occur until after the completion of all nuclear facility demolition since TRU waste will probably be generated by D&D. The late completion of demolition in Case 1 (FY2017) causes an even greater delay in completion of TRU waste shipment, which is stretched until FY2027 by the effects of escalation, reduced work efficiency, prolonged mortgage costs, and extended management and technical support costs. This date would be shortened to FY2012 and FY2011 in Cases 2 and 4 respectively, and could be as early as FY2008 or FY2009 with the annual funding and assumptions of Case 3 or Case 5, respectively. The one year lag in Case 5 results from an additional year of waste generation from activities which are performed later in Case 5, due primarily to reduced funding in FY2001 and FY2002, assumed for Case 5 compared to Case 3.

#### Environmental Remedial Actions

The environmental remediation of contaminated areas proceeds in parallel with the other risk reduction efforts, but at a slower pace, consistent with its minimal effect on mortgage reduction and its lower priority in the risk ranking. Case 1 funding does not allow completion of the 89 remedial actions currently planned until FY2027, whereas the increased funding under Cases 2 and 4 would allow completion of the remedial actions by FY2014. Case 3 funding would accelerate the completion date to FY2010. Case 5 incorporates recently negotiated current year and outyear RFCA milestones which the other cases do not. Case 5 allows completion of remedial actions by FY2009.

#### Ship All Low-Level Waste Offsite

The duration for shipping low-level waste and low-level mixed waste to offsite DOE and commercial disposal sites varies by case in the same manner as for TRU waste, (i.e., lagging building D&D and environmental remediation, and prolonged substantially in Case 1 until FY2027). The higher annual funding levels of Case 3 and Case 5 allow these activities to be completed by FY2008 and FY2009 respectively, three to four years earlier than the FY2012 completion date for Cases 2 and 4. The Case 5 completion of low-level waste by FY2009 is one

year later than Case 3's completion in FY2008, because Case 5 funding level drops off two years sooner than Case 3's.

#### **4.3 Workforce Projections for Cases 1 and 2**

Figure 4-7(a) illustrates that a larger workforce is needed to support the extended schedule associated with Case 1 compared with other cases with shorter schedules. For example, Case 1 requires an overall increase for the life of the project of 21,572 Full Time Equivalents (FTE) over that needed to support Case 2.

Significant annual fluctuations in the workforce must be managed. Figure 4-7(b) illustrates this challenge for the deactivation and D&D programs in Case 1 between FY2012 and FY2014, and in Case 2 between FY2004 and FY2005. The estimated workforce will more than double within one to two years. This could present serious training, coordination, and learning curve problems. Similar step increases would occur in Cases 3, 4, and 5. An effective management plan for the mobilization of the needed workforce will be developed to ensure that the workforce is adequately qualified and trained for the jobs to be performed. The plan will probably include elements of the following actions:

- Rescheduling work to support a more level labor force
- Cross training the workforce to enable workers to migrate from program to program (e.g., nuclear operations to D&D) while remaining employed at the Site
- Well planned acquisition schedules for the subcontractor workforce to ensure that the workforce obtained is properly trained and qualified. Any Request For Proposal (RFP) must be processed and published well ahead of the planned work to allow sufficient time for evaluating subcontractors' training and qualification plans, and time to implement those plans prior to the start of work.

The development of an effective workforce mobilization plan will commence as soon as the final case of the Discussion Draft is selected for implementation.

#### **4.4 Comparison of Draft TYP 1, Discussion Draft, and BEMR 1996**

This scope of the current Discussion Draft is virtually the same as that in Rocky Flats' Draft Ten Year Plan published in July, 1996. Both versions benefited from considerable clarity and agreement on the ultimate end state and the scope and nature of cleanup. This agreement was facilitated by the detailed analysis of alternatives in earlier planning documents such as "Choices for Rocky Flats," dated February 1996. Figure 4-8 compares the annual funding levels, total cost, and completion schedules for Draft TYP 1.0, Cases 1, 2, 3, 4, and 5 for the Discussion Draft, and the Rocky Flats portion of BEMR 1996, which was issued in June, 1996. As explained in Section 3 of this document, Case 5 represents the current estimate of the required annual funding level to accomplish the Closure Plan scope on a schedule consistent with that of Draft TYP 1.0, (i.e., all SNM stabilized and consolidated, and the majority of nuclear facilities demolished). The current estimate of the level of annual funding for Case 5 and the total project cost (\$7.3 billion) are both greater than the annual funding level and total project cost (\$6.0 billion unescalated) estimated for the equivalent scope of work in Draft TYP 1.0. There are three reasons for these apparent increases in cost and schedule.



### Indirect Support Costs

Draft TYP 1.0 estimated that the cost of indirect support and overhead could be substantially reduced in FY97 as compared to the FY96 level and that this reduction would project into the outyears. In formulating the FY97 work plan, the actual reduction in budget for these items was about \$45 million less than projected. The effect continues in the outyears.

### Escalation

According to DOE, HQ instructions, the Draft TYP 1.0 outyear costs were estimated without including escalation. The assumption was that escalation would be paid for with additional, separate budget authority. The Discussion Draft cost estimates, however, do include escalation, which is substantial and is discussed in Section 3.0.

### Improved Planning and Estimating

As Rocky Flats' planning has become more detailed, additional required tasks and resources have been identified, compared to those in Draft TYP 1.0.

All of the Cases (even Case 1) are substantially improved in duration and total cost from the 1996 BEMR projected cleanup date (FY2055) and total cost (\$17.4 billion, unescalated). The improvement is due to a variety of factors: greater clarity and agreement on cleanup levels; the commercial business focus possible under the Integrating Management Contract (IMC) concept; and aggressive streamlining, process improvement, and mortgage reduction by the Site's management.

## **5.0 STAKEHOLDER INVOLVEMENT**

### **5.1 Stakeholder Participation to Date**

Much of the early work completed for the Interim End State (IES) and Accelerated Site Action Project (ASAP) projects contributed to the Rocky Flats Ten Year Plan Draft Version 1.0 (TYP 1.0) submitted in July 1996 and to this document. Involvement of stakeholders throughout the development of the IES, ASAP and TYP 1.0 has enabled DOE and Kaiser-Hill to address and incorporate many important stakeholder concerns and ideas into the development of the Site strategies.

Beginning with the IES and continuing with ASAP, letters were sent to active Rocky Flats stakeholders inviting them to join in detailed discussions about ASAP. Those discussions provided input to the ASAP Team Leads and contributed to the development of the ASAP document titled "Choices for Rocky Flats" published in February 1996. This document evaluated a series of possible alternatives for the cleanup of Rocky Flats. Briefings were held at normally scheduled Stakeholder meetings (e.g., Citizens Advisory Board [CAB] meetings, Rocky Flats Local Impacts Initiative [RFLII] meetings, Rocky Flats Monthly Public Information meetings) describing the Rocky Flats Closure Project concept. Briefings were held at area business organization and local government meetings. Local media provided coverage of the Site Closure strategies.

Stakeholder participation has also been encouraged in the development of the Discussion Draft. Assumptions in the TYP 1.0 were discussed at a number of CAB committee meetings held throughout the summer and early fall of 1996 and at several RFLII board meetings. RFLII also hosted a "mini-summit" on October 19, 1996 to discuss the TYP 1.0 and its assumptions. Several public meetings were held on the TYP 1.0 which were attended by Assistant Secretary for Environmental Management, Alvin Alm.

In addition, underlying the development of the Kaiser-Hill (K-H) Site strategies has been the negotiation and completion of the Rocky Flats Cleanup Agreement (RFCA), which provides a collaborated process with regulators for budget planning and execution. Throughout the development of RFCA, regulator, government, and other stakeholder involvement took place. Stakeholder involvement in the RFCA process is documented separately and is included as an attachment to the RFCA document.

Following is a partial listing of meetings that have been held which relate to the accelerated cleanup strategies for Rocky Flats embodied in the IES, ASAP, and the TYP 1.0.

<b>DATE</b>	<b>ACTIVITY</b>
7/10/95	CAB Site Wide Issues Committee Meeting (agenda included discussion of a proposed onsite Waste Disposal Facility)
8/3/95	CAB Site Wide Issues Committee Meeting (agenda included discussion of RFCA)
9/7/95	CAB Board Meeting (agenda included a work plan presentation on the "Interim End State" later known as the ASAP)
9/20/95	Rocky Flats Environmental Restoration Quarterly Public Information Meeting (agenda included accelerated closure and proposed plutonium consolidation building)

10/16/95	CAB Site Wide Issues Committee Meeting (agenda included discussion of the Waste Management Programmatic Environmental Impact Statement [PEIS] and the next steps for disposal and storage at Rocky Flats)
10/25/95	Rocky Flats Monthly Public Information Meeting (agenda included ASAP)
11/9/95	Stakeholder “pizza” meeting in Building 060 to discuss ASAP scenario development to focus on specific areas of the project (e.g., Environmental Restoration, Waste Management)
11/21/95	CAB Plutonium & Special Nuclear Material Committee (agenda included alternatives for plutonium consolidation)
12/5/95	Stakeholder briefing on scenario development progress
12/7/95	CAB Board Meeting (agenda included visions for the future of Rocky Flats presented by the State of Colorado, EPA, and DOE)
12/11/95	CAB Site Wide Issues Committee Meeting (agenda included discussion of the status of the K-H Waste Disposal/Storage Proposal)
12/14/95	ASAP Environmental Restoration Working Group meeting with the Rocky Flats Local Impacts Initiative (all stakeholders welcomed and invited to ask questions and offer input)
12/14/95	Rocky Flats Local Impacts Initiative Quarterly Membership Meeting (agenda included Rocky Flats Vision and ASAP)
12/19/95	Waste Management Working Group meeting at Standley Lake Public Library (all stakeholders welcomed and invited to ask questions and offer input)
12/21/95	Public workshop to discuss ASAP Phase II of the project, including time lines
1/10/96	Rocky Flats Quarterly Environmental Restoration Public Information Meeting (agenda included ASAP)
1/20/96	Stakeholder Summit. Although not specifically conducted to address ASAP, the Vision, and the Ten Year Plan, and the assumptions of each were topics of conversation
2/21/96	Rocky Flats Public Information Meeting (agenda included Vision/RFCA)
3/20/96	Rocky Flats Quarterly Environmental Restoration Public Information Meeting (agenda included Vision/RFCA)
3/26/96	Plutonium Storage & Disposition Programmatic Environmental Impact Statement Scoping Meeting
5/6/96	CAB Site Wide Issues Committee Meeting (agenda included discussion of ASAP status)
6/10/96	CAB Site Wide Issues Committee Meeting (agenda included discussion of the approach for ASAP Decision-Making and Public Involvement)
7/30/96	Plutonium Interim Storage Environmental Impact Statement Meeting
8/1/96	CAB Board Meeting (agenda included the Ten Year Plan, Version 1.0)
8/5/96	CAB Site Wide Issues Committee Meeting (agenda included discussion of the Ten Year Plan, Version 1.0)
8/13/96	Plutonium Interim Storage Environmental Impact Statement Meeting
9/8/96	Ten Year Plan, Version 1.0 Decision Analysis Workshop with Doctor Lee Merkhofer (agenda included discussion of options for low-level waste disposal)
9/25/96	Ten Year Plan, Version 1.0 Follow-up Workshop with Doctor Lee Merkhofer
10/7/96	CAB Site Wide Issues Committee Meeting (agenda included discussion of the Ten Year Plan, Version 1.0)
10/8/96	Ten Year Plan, Version 1.0 briefing to House of Representatives’ staff members

10/10/96	Ten Year Plan, Version 1.0 briefing to Colorado Forum
10/19/96	Ten Year Plan, Version 1.0 community work session with Al Alm
10/23/96	Rocky Flats Public Information Meeting (agenda included Public Hearing on Ten Year Plan, Version 1.0 Assumptions)
11/7/96	CAB Board Meeting (agenda included discussion of the Ten Year Plan, Version 1.0)
11/12/96	CAB Site Wide Issues Committee Meeting (agenda included discussion of the Ten Year Plan, Version 1.0)
11/18/96	CAB National Issues Committee Meeting (agenda included discussion of waste transportation issues)
11/19/96	Public Meeting to present the status of the Ten Year Plan, Version 1.0
11/20/96	Closure Project overview presented at the Lower Downtown Denver Rotary Meeting
11/27/96	Ten Year Plan, Version 1.0 overview presented to Denver Metro Chamber of Commerce
12/17/96	CAB Plutonium and Special Nuclear Material Committee Meeting (agenda included a presentation on decontamination and decommissioning plans for Rocky Flats)
1/6/97	CAB Site Wide Issues Committee Meeting (agenda included discussion of Waste Management in the Ten Year Plan, Version 1.0)
1/14/97	CAB National Issues Committee Meeting (agenda included discussion of WIPP transportation issues and emergency preparedness)
1/15/97	Rocky Flats Public Information Meeting (agenda included draft Ten Year Plan, Version 1.0 Update)
1/21/97	CAB Plutonium and Special Nuclear Material Committee Meeting (agenda included an update on the environmental impact statement for a plutonium storage vault)
1/29/97	The Discussion Draft public briefing
2/12/97	The Discussion Draft Overview presented to Rocky Flats Local Impacts Initiative local governments subcommittee
2/14/97	The Discussion Draft overview presented to Rocky Flats Local Impacts Initiative Biweekly Meeting

## **5.2 Future Stakeholder Participation Opportunities**

The following section is organized in three parts. Section 5.2.1 describes the general stakeholder involvement strategy associated with the Discussion Draft and the Rocky Flats Closure Project. Section 5.2.2 presents the activities and tools that will be used to implement the strategy, including a framework for stakeholder involvement linked to future revisions. In Section 5.2.3, issues related to Discussion Draft planning assumptions which warrant further stakeholder dialogue are identified. A stakeholder involvement strategy is briefly described for each issue.

### **5.2.1 Public Involvement Strategy**

The Rocky Flats Closure Project was conceived as a means of implementing public policy decisions deliberated among the DOE, EPA, the state, and a broad range of stakeholders during and subsequent to the development of RFCA. Stakeholder interest remains high in monitoring Closure Project progress and providing input to decision-makers on the manner in which the Project is carried out.

Therefore, strategic objectives are intended to:

- Maintain dialogue among interested stakeholders and key project decision-makers as the Plan is implemented and revised
- Improve stakeholder access to information about Rocky Flats Closure Project progress and changes in the Plan assumptions
- Promote alignment between Project and stakeholder interests regarding outstanding Plan issues.

Stakeholders in this plan include Site employees, elected officials and staff, CAB members, RFLII members, and the general public.

It is important to emphasize that the Plan is a living document that will be evaluated and updated periodically as new information becomes available. Stakeholders will play an essential role in this ongoing development and review process. Because of the evolving nature of many key planning assumptions, this stakeholder involvement strategy must remain dynamic and flexible. Stakeholders are encouraged to provide input on how they would like to be included in shaping Rocky Flats decisions.

## **5.2.2 Public Involvement Activities and Tools**

This section presents tools and techniques designed to achieve the strategic objectives outlined in Section 5.2.1.

### Meetings/Briefings

*Cascading Meetings* - Information on Plan developments will be conveyed to supervisors through Cascading Meetings briefing materials for their use in face-to-face meetings with Site employees.

*CAB and RFLII Presentations* - These boards have a diverse range of membership and attendance, and provide access to a cross section of stakeholders. Presentations to the full boards or interested subcommittees will be offered regularly. All briefings are intended to encourage two-way communication and obtain feedback for decision-makers.

*Discussion Draft Briefings* - Briefings will be offered to federal, state and local officials; local government officials; business organizations; interest groups; and employee representatives, as requested and in compliance with RFCA.

*Presentations at Scheduled Rocky Flats Public Information Meeting* - Presentations and discussions in this forum will promote communication with those community members who are not associated with the Site Specific Advisory Boards or other organized stakeholder groups.

*Focused Stakeholder Meetings (Pizza Meetings)* - These meetings, typically scheduled in the early evening and accompanied by pizza, provide an opportunity for informal dialogue among stakeholders and Site personnel on a focused topic. These meetings will be held as needed. A

conference calling telephone line and speaker phone will be used on a trial basis to broaden participation for those not able to travel to the meeting location.

*Teleconferences* - Teleconferences will be conducted as needed to augment opportunities for input by stakeholders known to have a high level of interest in a specific issue.

#### Person-to-Person Communication

*Person-to-Person Contact* - This approach builds on the established network of informal communication between Site representatives and key stakeholders. To strengthen this network, Site representatives would be designated to develop relationships with community opinion leaders. The Site representatives will be provided complete, current, and accurate information about the Plan developments and Closure Project progress, and tasked with promptly conveying that information to opinion leaders. It would also be their job to listen to opinion leader concerns or questions, and relay that information to decision-makers. In many cases, this activity is a natural extension of existing relationships.

#### Informational Tools

*Employee Publications* - Information about Plan progress and developments will be published through the Site newspaper (*Crossroads*) and on the Site intranet.

*Monthly Newsletter* - A monthly newsletter will be published to provide regular updates on Site activities to stakeholders. The newsletter will cover Site plans and accomplishments, including upcoming opportunities for stakeholder involvement and highlights on Plan developments.

*Annual Report Card* - An annual report on Closure Project progress will be published and distributed to Site employees and other stakeholders. Updates to the report will be published periodically during the year.

*Fact Sheets* - Fact sheets will be developed and revised as needed to support the Discussion Draft communication. Examples of fact sheet topics include: TRU Waste, low-level and low-level mixed waste, SNM, Contingency Plans, D&D, and Soil Action Levels. Additional fact sheets will be developed as informational needs arise.

*Responsiveness Summary* - A formal Responsiveness Summary is being drafted that addresses stakeholder questions and comments received to date on the Discussion Draft. Once completed, this document will be made available to agencies, local cities, state, CAB, RFLII and the public reading rooms. A formal responsiveness summary was prepared following the July 1996 TYP. Questions and comments will be encouraged throughout the life of the Plan and addressed on an ongoing basis.

*Community Advisories* - Community advisories announcing public meetings and other relevant information will be issued over the Rocky Flats community broadcast fax system, which reaches more than 50 local community organizations and stakeholders. Distribution will be updated periodically to encompass active participants. Community advisories will also be used to announce important Plan information as appropriate (e.g., WIPP opening)

*News Releases* - News releases will be used to announce similar information as described above in Community Advisories.

*Advertisements* - Display advertisements will be placed in major newspapers to publicize DOE-sponsored public information meetings.

*Site Internet Web Page* - The Site will develop the existing Rocky Flats Internet Web Page as a channel for improving stakeholder access documents and information regarding the Plan and the Rocky Flats Closure Project.

*Document/Record Accessibility* - The Public Reading Room will be maintained to provide public access to available documents.

#### Annual Stakeholder Involvement

The following proposed annual stakeholder involvement process would integrate an evaluation of the Plan, performance measures, RFCA milestones, and Site-Wide Integrated Baseline:

*State of the Flats Annual Report* - This letter report would be disseminated at the beginning of each fiscal year approximately one month prior to the State of the Flats Stakeholder Meeting (see below). It would provide a detailed discussion of the following:

- What did the Site accomplish in the past year?
- What didn't the Site accomplish that was planned and why?
- What is planned for the upcoming year? Integration of the upcoming Performance Measures, Milestones, Baseline and Budget.

*State of the Flats Stakeholder Meeting* - This meeting would be held in mid-November each year to examine the integration of the latest Performance Measures, RFCA Milestones, Budget, and the Plan. Accountability for the past and prioritization for future decisions would be the themes of the meeting. The meeting would address the same subjects outlined under *State of the Flats Annual Report* and would include discussion of areas where stakeholder involvement is needed.

*Stakeholder Meetings for Budget and Baseline Planning* - These meetings are being proposed for active stakeholders that are very familiar with Rocky Flats' activities.

- *February-March:* The informal pizza meeting format would be used to promote dialogue on the budget submittal for the upcoming fiscal year and outyears. At this meeting budget constraints and prioritization for the upcoming year would be discussed.
- *July-August:* Designed as a follow-up to the February-March meeting, this meeting would include a report on final budget guidance received by the Site from DOE, HQ and dialogue about prioritization of activities planned for the upcoming year.

### 5.2.3 Issues Warranting Further Dialogue

Dialogue among Rocky Flats management and stakeholders presented in Section 5.1 has laid the groundwork for engaging stakeholders further as this document is refined and contingencies are developed to accommodate changes in planning assumptions. Central to the stakeholder involvement strategy presented in this section is the recognition that this document is a living document which will be revisited annually to accommodate new information and changes in original planning assumptions.

This Discussion Draft submittal is based on assumptions about major issues affecting the specific path forward for the Rocky Flats Closure Project. These issues include:

- Plutonium Interim Storage and Disposition
- TRU waste treatment and storage
- Facility Reuse
- Low-level and low-level mixed waste (LLW and LLMW) treatment, storage, and disposal
- Soil Action Levels (annual review)
- Technology Development
- Cost / Schedule
- Privatization

A specific stakeholder involvement strategy for each issue is presented below. It is anticipated that some issues may be resolved by August 1997, while others will not be ripe for public dialogue until the current Discussion Draft assumption proves invalid. Where possible, timelines for future decision points are outlined.

#### Issue: Plutonium Interim Storage and Disposition

##### *Issue Statement*

In light of the recent DOE announcement to consolidate the nation's weapons grade plutonium at the Savannah River and Pantex sites, the current Rocky Flats Discussion Draft assumption regarding an interim storage vault may change.

##### *Analysis*

The Discussion Draft assumes that a new, interim storage vault would be constructed to store plutonium metal and oxides until the material is shipped offsite (except in Case 4 and Case 5). If, on the other hand, a storage facility is available offsite in the next few years and plutonium is cleared to be shipped to this facility ahead of current schedules, then a new interim storage facility would not have to be constructed. Based on extensive stakeholder dialogue on this issue, it appears that a plurality of stakeholders support construction of an interim storage vault at Rocky Flats. Currently, the timing of any final national policy decision regarding consolidation of weapons



grade plutonium is unclear. DOE Headquarters must first complete stage two of its Storage and Disposition of Special Nuclear Materials (SNM) programmatic EIS (S&D EIS).

#### *Stakeholder Involvement Strategy*

Regular updates on this issue, including information on any related policy developments, will be communicated to stakeholders through multiple channels (e.g., person-to-person contacts, community advisories, meeting reports) as it becomes available. Opportunities for dialogue will be created in consultation with stakeholders as these developments unfold.

#### Issue: Transuranic (TRU) Waste Disposal

##### *Issue Statement*

The safety of WIPP shipments while en route is of particular interest to stakeholders living along the haul route. Any delay in the scheduled opening of WIPP would prompt dialogue on additional onsite TRU waste storage options. Also, the state is considering alternatives to routing WIPP-destined waste through the Denver metro area.

##### *Analysis*

The TYP assumes the Waste Isolation Pilot Project (WIPP) will open and accept Rocky Flats' TRU waste beginning in Fiscal Year 1998. Despite recent congressional actions, several stakeholders remain skeptical that WIPP will open as scheduled, and some oppose the concept of shipping TRU waste to WIPP. Additionally, stakeholders have expressed interest in Rocky Flats' plans for contingent storage of TRU waste in the event WIPP's opening is delayed. Certain stakeholders argue that Rocky Flats should develop a firm contingency (e.g., design a new onsite storage facility) because they believe WIPP will never open. Other stakeholders, particularly municipal governments, favor WIPP opening and would like to see Rocky Flats TRU waste shipped offsite as soon as possible. The Site currently has sufficient storage capacity until approximately FY2000, assuming the current plutonium residue processing schedule remains unchanged. Construction of a new TRU waste storage facility would take approximately 18 months to complete.

#### *Stakeholder Involvement Strategy*

Regular updates on the status of WIPP will be provided to stakeholders through normal Site communication channels. In conjunction with the state, Rocky Flats is taking steps to increase public awareness of Site readiness to begin waste shipments to WIPP beginning in FY98. Opportunities for public dialogue on contingencies for TRU waste disposal will be initiated in the event WIPP does not open as scheduled.

#### Issue: Facility Reuse

##### *Issue Statement*

There are several issues associated with facility reuse:

- General feasibility of a long-term commitment to reuse must be determined
- Implications of potential facility reuse during cleanup (e.g., infrastructure development)
- Identification of facilities to be used by the community after cleanup is complete
- Rate of D&D activities, especially involving elements of Site infrastructure or utility systems that may serve reuse facilities.

### *Analysis*

Under its charter, the RFLII has the lead in developing a recommended strategy for reuse of Rocky Flats facilities following completion of the Rocky Flats Closure Project. Continuing stakeholder dialogue on this issue is anticipated for the next several years.

### *Stakeholder Involvement Strategy*

RFLII will continue to be the focal point for stakeholder involvement activities on facility reuse issues. RFLII intends to establish a Facility Reuse Task Force that will meet on a regular basis. With DOE guidance, the Task Force will create facility reuse criteria and report these criteria to interested stakeholders. Additionally, RFLII plans to hire a consultant to help organize and evaluate technical issues.

### Issue: Low-Level, Low-Level Mixed Waste Disposal

#### *Issue Statement*

Options for offsite disposal of LLW and LLMW are limited. There are very few facilities capable of accepting Rocky Flats LLW and LLMW.

#### *Analysis*

The Discussion Draft assumes that all LLW and LLMW will be treated either onsite or offsite, and then disposed offsite. To enable expedited Site cleanup, new LLW/LLMW storage facilities would be constructed to store the waste on an interim basis prior to shipment for treatment. This current assumption has strong support with several stakeholder groups, particularly the municipal governments, which favor cleanup and removal of the waste as quickly as possible. A minority of stakeholders argue that the low-level waste should be stored in containers in a building until such time as technologies exist to separate the radioactive contamination from the waste.

#### *Stakeholder Involvement Strategy*

Regular updates on Rocky Flats' efforts to identify facilities for treating and storing LLW and LLMW will be broadly communicated through multiple channels (e.g., person-to-person contacts, community advisories, meeting reports). Opportunities for dialogue will be created in consultation with stakeholders as these developments unfold.

### Issue: Soil Action Levels

#### *Issue Statement*

Current soil action levels are not considered acceptable to some key stakeholders who seek a significant annual review opportunity to address what they view as public health protection deficiencies in the current policy.

#### *Analysis*

After extensive public dialogue, the U. S. Environmental Protection Agency (EPA), the Colorado Department of Public Health and the Environment (CDPHE), and DOE set interim soil action levels on October 18, 1996. These interim soil action levels guide the extent of the cleanup of radiologically contaminated soils. This decision was made after consideration of all verbal and written public comments received on the proposed action levels. DOE, EPA, CDPHE, and a number of stakeholders felt that environmental cleanup is too important to postpone. Certain

stakeholders argue that the current low-level waste assumption to dispose all low-level waste offsite is directly linked to an arbitrarily high 15/85 mrem soil action level decision. Others want the Site to be cleaned up to background levels. Even though some members of the public endorsed the plan to continue environmental restoration using an interim action level, others recommended a delay in setting interim levels until a national standard is set. Critics further argue that the public involvement associated with setting the soil action levels was not sufficient.

#### *Stakeholder Involvement Strategy*

In addition to the July annual review of RFCA, the agencies will be responsible for conducting an internal annual review of the soil action levels. An annual report summarizing the review will be presented to the public. Stakeholders will be consulted in developing the details of how the review will take place. At a minimum, questions that will be addressed on an annual basis include:

- Is there new scientific information available that would impact the interim action levels?
- Has a national soil action level been promulgated within the year? If yes, the parties commit to revisit Rocky Flats' interim action levels.
- How were the interim action levels applied to the Site over the course of the year?
- Have the remedies been effective?

#### Technology Development

##### *Issue Statement*

Several stakeholders have raised concerns about the Site's technology development position. Some feel that a dedicated Technology Development Program at Rocky Flats is important.

##### *Analysis*

The Site is currently proposing to eliminate the Technology Integration Program and replace it with a new Technology Application organization. The new approach involves searching the globe to identify proven technologies that hold promise for application at the Site. The Site will monitor ongoing cleanup technology development activities in both commercial and government sectors, including other sites in the DOE complex. As successful technology demonstrations are identified and proven applicable to Rocky Flats' cleanup activities, implementation by commercial service contractors or direct Site application will be encouraged.

#### *Stakeholder Involvement Strategy*

Information on the new technology approach will be communicated through a variety of tools, such as a fact sheet, monthly newsletter, and informal conversations with stakeholders. Opportunities for dialogue will be created in consultation with stakeholders as the approach develops. The Site Technology Coordination Group (STCG) will continue to work with stakeholders on Site technology issues.

### Issue: Costs and Schedule

#### *Issue Statement*

The annual budgeting process does not provide certainty that the Rocky Flats Closure Project can be completed as expediently as originally envisioned.

#### *Analysis*

Funding for the Rocky Flats Closure Project is subject to an annual budgeting process. The current budget planning guidance in the Discussion Draft could extend the Rocky Flats Closure Project by 5 to 30 years. Stakeholders are concerned that the future funding for Rocky Flats is not adequate to achieve efficient and timely cleanup of the Site.

#### *Stakeholder Involvement Strategy*

Information on the annual budget planning cycle and future funding developments will be broadly communicated through multiple channels (e.g., person-to-person contact, monthly newsletter, meeting presentations). Budget planning documents, including annual revisions of the Plan, will be provided to stakeholders for review and comment. Additional opportunities for dialogue will be created in consultation with stakeholders.

### Issue: Privatization

#### *Issue Statement*

Several stakeholders have raised concerns regarding the potential privatization of D&D activities.

#### *Analysis*

Rocky Flats is currently exploring privatization opportunities for future Site activities. Additional information and guidance is required from DOE, HQ before final decisions will be made on specific projects.

#### *Stakeholder Involvement Strategy*

As information develops and guidance is received from DOE, HQ, the Site will disseminate the proper information. Presentations will be offered as needed.

## **5.3 Submitting Comments**

In order to incorporate comments into the Discussion Draft planning process, DOE, EM is holding concurrent public comment periods on the EM National Discussion Draft and the Site Discussion Draft. A 90-day public comment opportunity begins with the release of the Discussion Draft on June 12, 1997, and ends on September 9, 1997.

Between June and September, EM will work with its regulators and stakeholders to address issues, refine data, and provide continued analysis to support release of the Draft 2006 Plans later this year and the Initial National 2006 Plan early in 1998.

EM in a parallel effort has asked sites to involve stakeholders in the formulation of the FY1999 budget. The EM FY1999 budget is being developed concurrently with the Discussion Draft. In July, EM will be holding a national feedback session to discuss the EM national FY1999 budget. The options and alternatives described in the discussion draft and future iterations of the 2006 Plan

will impact budget formulation and execution activities. This planning process will allow EM to develop annual budgets in the context of long term objectives.

At the national level, EM is focusing on ways to increase efficiencies and make the best use of its resources across the EM program. Comments focused on issues related to the EM National Discussion Draft or comments concerning cross-site or policy issues should be submitted directly to EM at the following address:

U. S. Department of Energy  
Mr. Gene Schmitt  
P. O. Box 44818  
Washington, DC 20026-4481  
(Toll-Free Number: 1-800-736-3282) to request a copy of the National Discussion Draft  
(E-mail: [Focuson2006@EM.DOE.Gov](mailto:Focuson2006@EM.DOE.Gov)) (not case sensitive)

Comments on the Rocky Flats Discussion Draft to the following address:

U. S. Department of Energy  
Rocky Flats Field Office  
Ms. Mariane Anderson  
P. O. Box 928  
Golden, CO 80402-0928  
(303/966-6088)  
(e:mail: [mariane.anderson@rfets.gov](mailto:mariane.anderson@rfets.gov))

Although the public comment period will extend through September 9, 1997, reviewers are requested to submit their comments as early as possible. Requests for further information on the EM National Discussion Draft should be directed to the Center for Environmental Management Information (CEMI) at 1-800-736-3282. Requests for a copy of the Rocky Flats Discussion Draft should be directed to the Rocky Flats Office of Communications at 303-966-6088.

## **6.0 REGULATORY COMPLIANCE**

### **6.1 Compliance and the Plan**

RFETS is fully committed to regulatory compliance and environmental cleanup and stewardship at RFETS. This commitment includes compliance with environmental laws and regulations; nuclear safety and management requirements; applicable agency agreements; and approved compliance schedules. RFETS is committed to conducting management and operations in a manner that gives priority to performance which attains regulatory compliance and the goals of Site closure.

Programs are in place to support compliance with environmental regulations from Title 40 Code of Federal Regulations (CFR) and Colorado environmental laws and regulations, nuclear regulations outlined in Title 10, finalized agency agreements, consent orders, applicable DOE Orders and DNFSB recommendations. To track and ensure compliance with external commitments, management systems and tools have been developed and are utilized. The ability to maintain compliance with DOE Orders for both environmental and nuclear activities is achieved largely through programmatic implementation and requests for exemption.

The ultimate goal of rapid, effective, and safe closure of the Site must be the prime consideration to ensure that activities and resources are optimally applied to achieve the Site Vision described in the Rocky Flats Cleanup Agreement. Compliance is a key element for success, therefore the commitment to compliance is constant under all funding scenarios. The implementation of this commitment involves balancing resources between baseline compliance and cleanup and closure.

The funding scenarios require differing approaches to compliance in terms of strategy, tactics, and timing. Strategies may be adjusted to alter the time distribution of resources required for compliance. Meeting DNFSB commitments and milestones is recommendation-specific to a large extent. For example, 94-1 activities would likely be limited to dispositioning liquids in Case 1 while residue stabilization activities could proceed slowly under both Cases 2 and 4. Given the funding levels in Cases 1, 2 and 4, significant modifications related to resource allocation would be required for the Site to maintain compliance. Under these three scenarios, it would be necessary to rebaseline/renege the entire set of DNFSB commitments and milestones in addition to renegotiating with EPA and CDPHE on environmental agency agreements. Given the agencies' current issues and perceptions, re-establishment of commitments could not be guaranteed. Under the higher early year funding levels for Cases 3 and 5, resource allocation can focus both on cleanup and closure and maintain baseline compliance. Under all scenarios, the key to success is a continued examination of "necessary and sufficient" requirements for cleanup and closure activities.

Table 6-1 identifies the major regulatory drivers and commitments made by RFETS and indicates the level of effort required to achieve baseline compliance versus applying resources to cleanup and closures activities. It is the express intent of the Site to maintain compliance under any funding scenario; however, resource allocation is a continuum between baseline compliance and cleanup and closure activities.

**Table 6-1**  
**Level of Effort for Baseline Compliance**

<b>Driver</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
DNFSB	High	Medium	Low	Medium	Low
FFCA STP NPDES	High	Medium	Low	Medium	Low
RFCA	High	Medium	Low	Medium	Low
Consent Orders Mixed Residue Chemical Mgt Tanks Idle Eqmt	High	Medium	Low	Medium	Low
RCRA PERMIT	High	Medium	Low	Medium	Low
10 & 40 CFR	High	Medium	Low	Medium	Low

- High - A high level of effort and resources will be required to maintain baseline compliance. Resource allocation will focus more on baseline compliance than cleanup and closure. Specifically, efforts will focus on the elimination of unnecessary internal requirements, streamlining existing procedures, “necessary and sufficient,” requirements and renegotiating with the agencies as necessary. Only major progress in efficiency will allow significant resource allocation to closure progress.
- Medium - Resource allocation will be balanced between baseline compliance and cleanup/closure. Streamlining efforts for internal requirements (“necessary and sufficient”) will be necessary, and some level of regulatory flexibility may be requested.
- Low - Resource allocation will focus on cleanup and closure, and baseline compliance will be maintained. Increased efficiency through continuous “necessary and sufficient” analysis will allow additional resource allocation to cleanup and closure activities.

## **6.2 National Environmental Policy Act (NEPA) Compliance**

In Table 6-2, each project activity has been evaluated for its compliance with NEPA. In some cases, projects already have been evaluated for NEPA. Some will be evaluated for “NEPA values” for CERCLA-related projects, and other projects will require formal NEPA evaluations in the form of categorical exclusions, environmental assessments, environmental impact statements, or potential Discussion Draft /NEPA Site interrelationships. Table 6-2 provides an indication as to the proposed level of documentation required and the time frame within which to begin the NEPA process. Table 6-2 is not based on any particular case, but rather is a composite of all cases with the focus on the WBS elements.

## **7.0 ENVIRONMENTAL MANAGEMENT PRIVATIZATION PROGRAM**

### **7.1 Background and Approach**

During recent years, the Department of Energy, Environmental Management (DOE, EM) has undertaken numerous initiatives to reduce the overall cost and improve the efficiency of its cleanup efforts. The Privatization Program, which has been under development for the past two years, is one of the fundamental elements of this cost reduction and efficiency improvement strategy.

There are several underlying principles which have moved DOE contracting strategy in this direction. First is the basic assumption that methods, approaches, and cleanup technologies used in private industry are at least as efficient and cost effective as those used by captive government contractors, (i.e., traditional Management and Operating [M&O] contractors).

Second, it is believed that full and open competition for work will entice specialized niche subcontractors to bring their state-of-the-art skills to the DOE cleanup effort in a more effective manner than the relatively monolithic structure of the M&O operating on a cost-plus contract.

Third, the traditional DOE system of capital construction and waste treatment has produced a relatively poor record of cost performance. One study, performed by Independent Project Analysis, Inc., indicates that historically DOE, EM has overrun projects by approximately 38 percent.

With these systemic shortcomings in mind, a different strategy (privatization) was developed by DOE during FY96, with concurrence from the Office of Management and Budget (OMB) and Congress. Funding for privatization projects was provided to DOE in the FY97 Energy and Water Appropriations Bill and is made available to individual projects following approval by DOE and OMB. Funding for privatization projects, therefore, is considered to be "above" the planning targets projected by DOE, HQ for each site.

The fund itself is known as the "Defense Environmental Restoration and Waste Management Fixed Asset Acquisition Account." Projects which qualify for this privatization funding must meet the following criteria:

- 1) The project can be awarded by open fixed-price competition.
- 2) The project will be cost-effective compared to the site Integrating Management Contractor performing the work.
- 3) The scope of work can be defined within reasonable bounds, and the deliverable end product or service can be precisely defined.
- 4) The regulatory oversight under which the work will be performed can be defined, and will be in place and functional before the project is started.
- 5) The potential private sector contractor(s) can design, permit, construct, finance, and operate the processes and/or facilities required to deliver the negotiated end state.



- 6) The potential private section contractor(s) have the financial capability to meet negotiated performance criteria over the total life-cycle of the privatized project and are able to defer payment until the product(s) meet contractual requirements and are delivered.
- 7) The proposed privatization project can be assigned to one of the following categories:
  - Category I - Significant contractor-owned and operated facilities/equipment dedicated to EM program cleanup, usually on a DOE site, or
  - Category II - Deactivation/Decommissioning of DOE facilities, or
  - Category III - Other fixed-price open competition EM contracts which meet the privatization criteria.

During the past year, RFETS has submitted and received approval for several projects beginning in FY97 and FY98. During the coming months, projects for FY99 will be submitted for approval along with a detailed economic analysis of the alternatives and appropriate financial summaries.

One case, Case 5, assumed unrestricted use of privatization funding. This assumption was made in order to more fully evaluate the effects of additional unfenced funding. It is important to note that currently, privatization funds can only be used for projects meeting certain criteria.

As experience is gained using the privatization approach, DOE, HQ will continue to evaluate the effectiveness of the Program. If it is successful in producing cost-effective results, it will be extended to a larger percentage of DOE, EM cleanup projects in coming years.

## **7.2 Current Privatization Projects**

During the past year, preliminary cost estimates were prepared for the privatization projects submitted in the FY98 budget. These cost estimates were based on the best data available at the time and were the basis for DOE's FY98 budget submittal to Congress. Because no privatized facilities have been constructed at RFETS, nor any major nuclear facilities demolished, the estimates for the projects are by definition preliminary. The overall accuracy of the estimates in the Discussion Draft is minus fifty and plus one hundred percent, (See Section 3.3, Cost and Schedule Methodology).

As the solicitation cycle for the privatization projects progresses, the cost estimates and the actual privatized contract values will be updated. Prior to placing a privatized contract, a final analysis will be performed to ensure that the option is cost-effective. Any changes in BA requirements would then be adjusted with DOE, EM. See Table 7-1 for the mapping of the Discussion Draft costs to the BA request.

Although discussion is continuing on several of the privatization projects submitted to DOE, HQ during FY96, three projects already have been approved and are moving forward, pending Congressional approval of funds. They are the Decontamination and Decommissioning (D&D) of Building 779, D&D of Building 886, and Waste Water and Sludge Treatment. The privatization approach has been incorporated into the Project Baseline Summaries (Vol. III) for this Discussion Draft, and replaces the approach reflected in Draft Version 1.0 (July, 1996).

**Table 7-1**  
**Privatization Breakdown**  
(\$s in Thousands)

		<b>FY 98</b>	<b>FY 99</b>	<b>TOTAL</b>
<b>779 Privatization</b>				
1.1.6.14.0 4	779 Cluster Decommissioning	1,545	4,208	5,753
1.1.4.4.2.	Provide Waste Transport Offsite - Haz Waste	23	23	45
1.1.4.4.2.	Provide Waste Transport Offsite - LL Waste	547	547	1,094
1.1.4.4.2.	Provide Waste Transport Offsite - Sanitary Waste	38	38	75
1.1.8.04.	Provide General Technical Support Services	150	150	300
	<b>Subtotal</b>	<b>2,302</b>	<b>4,965</b>	<b>7,267</b>
	Contingency	595	1,396	1,991
	Burden	2,106	4,491	6,598
	Escalation	150	627	777
	<b>779 TOTAL</b>	<b>5,154</b>	<b>11,479</b>	<b>16,633</b>
<b>886 Privatization</b>				
1.1.6.19.0 4	886 Cluster Decommissioning	957	1,998	2,955
1.1.4.4.2.	Provide Waste Transport Offsite - Haz Waste	5	5	11
1.1.4.4.2.	Provide Waste Transport Offsite - LL Waste	17	17	33
1.1.4.4.2.	Provide Waste Transport Offsite - Sanitary Waste	3	7	10
1.1.8.04.	Provide General Technical Support Services	60	60	120
	<b>Subtotal</b>	<b>1,042</b>	<b>2,087</b>	<b>3,129</b>
	Contingency	296	610	906
	Burden	973	1,905	2,877
	Escalation	69	266	335
	<b>886 TOTAL</b>	<b>2,381</b>	<b>4,868</b>	<b>7,248</b>
<b>ALWT Privatization</b>				
1.1.4.06.0 1	Waste Water and Sludge Treatment	13,617	4,333	17,950
	<b>Subtotal</b>	<b>13,617</b>	<b>4,333</b>	<b>17,950</b>
	Contingency	2,723	867	3,590
	Burden	11,879	3,671	15,550
	Escalation	847	513	1,359
	<b>ALWT TOTAL</b>	<b>29,066</b>	<b>9,384</b>	<b>38,450</b>
<b>TOTAL PRIVATIZATION FUNDING</b>		<b>36,600</b>	<b>25,731</b>	<b>62,331</b>
Additional Costs:				
	<b>Privatization Cost of Money - 10.5%</b>	<b>7,888</b>	<b>2,637</b>	<b>10,525</b>
	<b>Privatization Management Reserve</b>	<b>3,050</b>	<b>6,470</b>	<b>9,520</b>

The general approach for the two privatized D&D projects is as follows:

- Building deactivation which precedes D&D, will proceed using operating funds under the existing (IMC) cost-plus contract. According to the Work Assignment Guidelines, the labor portion of this work scope will be performed by the United Steel Workers of America (USWA). The detailed work scope for these projects is included in the Project Baseline Summaries (Vol. III) for the individual building cluster closure projects.
- Building deactivation projects will be closely coordinated with the follow-on privatized D&D projects to ensure that the work scope is appropriately planned and executed.
- Prior to solicitation, the work scope of the privatized D&D portion will be submitted for a formal Davis-Bacon Determination. According to existing guidelines, it is assumed that generally the scope will be covered by the Project Labor Agreement.
- Preparation for competitive solicitation of the privatized work scope will occur during FY97 concurrent with deactivation and D&D work in the buildings.
- Initial deactivation work will be completed under the cost-plus contract to an extent that allows effective fixed-price contracting under the privatization project.
- The selected privatization contractor will be responsible for the expense of mobilizing, planning, and executing the D&D work in advance of payments.
- Payments to the contractor will be made when the work is completed according to the initial K-H specifications. Payments will not begin prior to FY99.

The general approach to the privatized Waste Water and Sludge Treatment (WWST) project is as follows:

- The Site's Waste Water and Sludge Treatment systems will be upgraded to replace Building 374.
- Capital construction required to perform these upgrades will be procured through a competitive solicitation of private industry.
- Specifications given to potential vendors may include a reference design for upgrades to Building 910 in addition to a requirement for a new modular sludge treatment facility. If the reference design is included, potential vendors will have the option of submitting proposals on the reference design or proposing a new facility of their own design.
- The design basis throughput of the systems will be derived from the volumes (water and sludge) projected.
- The selected privatization contractor will be responsible for the expense of facility design, construction, and regulatory compliance in advance of payment.

- Payments to the contractor will be made as a capital lease, over the period of operation when the facility or facilities treat water and sludge, and will be based on the volume of effluent treated. Payments will not begin prior to FY98.

It is anticipated that the contracts for these privatization projects will be in place early in FY98.

### **7.3 Regulatory Structure**

#### Decontamination & Decommissioning (D&D)

The Site is regulated by numerous Federal, State, and Local laws, regulations and agreements. The Rocky Flats Cleanup Agreement (RFCA), describes the regulatory structure that will be used during the D&D process. First, the Site must develop and maintain a Decommissioning Program Plan (DPP) which documents the overall approach to the work and the general responsibilities of the parties involved. This DPP must be approved by the State of Colorado and the U. S. Environmental Protection Agency prior to the performance of any work.

Within the framework of the DPP, certain facilities, especially those with high hazards, will also require a project-specific plan, known as the Decommissioning Operations Plan (DOP). This plan, which will identify the safety basis of the work to be performed and the control set which will be enforced to regulate that work, must be approved by the State prior to the performance of any work.

These two plans form the core of the regulatory framework within which the D&D projects will be conducted. The plans will address the full range of regulatory issues required to ensure protection of the public, the worker, and the environment in a safe and compliant manner. It is anticipated that the plans will be in place and available to potential vendors early in the competitive solicitation cycle. It will be the responsibility of K-H to ensure compliance with the plans, and the responsibility of the privatization subcontractor to execute all work in accordance with the approved plans. The Colorado Department of Public Health and Environment will be the agency with lead responsibility for oversight of these plans.

#### Waste Water and Sludge Treatment (WWST)

The WWST will handle low levels of radioactivity in both water and sludge, as well as other hazardous materials which will require permitting under the Resource Conservation and Recovery Act. At Rocky Flats, it is possible to be regulated either under the DOE/K-H system, or to obtain necessary licenses and permits directly from the State of Colorado. Initially, the potential vendors will be allowed to choose one of the two alternate regulatory structures. If the vendor chooses the latter option, obtaining and maintaining all necessary permits and licenses will be part of the K-H performance specification.

### **7.4 Other K-H Privatization Initiatives**

Since the term "privatization" is extremely generic, at the outset it is important to distinguish among the various "privatization" initiatives K-H is pursuing. The projects discussed here are part of the DOE, EM Privatization Program, but K-H is independently pursuing a broad range of other activities which fall under the generic term "privatization", and which are not a part of this EM program.

As an example, K-H routinely makes business decisions, pursuant to its Integrating Management Contract with DOE, on outsourcing actions within the K-H team. K-H has four primary subcontractors, and many more "second tier" subcontractors who perform work at the Site. As K-H managers plan the execution of the Plan, it may be prudent and cost-beneficial to subcontract certain activities with specialized companies. These outsourcing actions are taken using operating funds under the cost-plus prime contract. These activities must always be performed in accordance with the Workforce Restructuring Plan and applicable union contracts. It is important to note, however, that these initiatives are completely separate from the EM Privatization Program.

## **7.5 Workforce and Labor Union Issues**

Privatization projects pursued at Rocky Flats will be conducted in accordance with the DOE approved Workforce Restructuring Plan, labor union collective bargaining agreements, the Rocky Flats Project Labor Agreement (PLA), and other agreements as applicable.

## **7.6 Future Privatization Projects**

In accordance with the criteria for privatization projects described above, K-H foresees three fundamental categories of projects which will be pursued under this program. Considered in sum, these categories account for a substantial portion of the work to be completed under the Plan:

- 1) New Capital Construction
- 2) Waste Treatment and Disposal

The projects which will be submitted in consideration for FY99 funding are:

- 1) Low-Level and Low-Level Mixed Waste Staging Facility
- 2) Transuranic/Transuranic Mixed Waste Storage Facility
- 3) Groundwater Management Project B
- 4) Size Reduction and Decontamination Facility

These projects have been selected as candidates because they meet the preset criteria and hold the greatest comparative advantage for cost savings and schedule acceleration. Details describing each of these three projects can be found in Attachment B.

As this document undergoes further refinement, privatization project lists will be developed for each fiscal year of the plan. As project analysis and documentation is prepared in the normal budget cycle, these projects will be submitted for approval.

## **ATTACHMENT A**

### **Attachment A Action Plans**

Seventeen issues/opportunities requiring resolution were identified in Attachment G of the December 20, 1996 Ten Year Plan Guidance. Of these 17 issues, two were determined to require Action Plans for resolution. The remaining 15 issues are addressed in this Discussion Draft.

The two issues requiring Action Plans are Intersite Transfer of Material and Waste, and Resolution of Plutonium Disposition Issues. DOE, RFFO submitted site-specific Action Plans to address these issues but DOE, HQ's review of the RFETS submittal determined that these two issues were national. Consequently, DOE, HQ rewrote the two Action Plans and will resolve the issues involved. Therefore, no RFETS-specific Action Plans are included in this attachment for these two issues.

## ATTACHMENT B

### PRIVATIZATION PROJECTS

#### **B.1 Rocky Flats Candidate Privatization Project #1 Low-Level (LL)/Low-Level Mixed (LLM) Waste Staging Facility**

##### Background

As activities at RFETS advance the Site toward closure, waste will continue to be generated. In particular, D&D activities will generate significant volumes of LL/LLM wastes, which will need to be temporarily stored onsite and staged for shipment and disposal offsite. Use of existing buildings for this activity is uneconomical and impractical due to the high mortgage costs of candidate buildings and their general unsuitability for this purpose.

##### Project Scope

A LL/LLM waste staging facility is planned in a modular configuration that would support the possibility of future expansion. The structure would be of a Butler Building type construction, with a concrete slab on grade. In addition, there would be a dock with appropriate shipping and staging areas. Personnel areas (e.g., office, break room, bathroom, lockers) and appropriate ventilation areas would be designed into the facility as needed.

##### Basis for Selection

LL and LLM wastes are currently stored in numerous locations throughout the Site. This facility would reduce handling, and surveillance and maintenance costs associated with the waste; and it would significantly contribute to the clearing of buildings, so that they can undergo D&D. This, in turn, would accelerate risk reduction and reduce mortgage costs associated with continued operation of these buildings.

##### Projected Costs

A detailed economic analysis, comparing life cycle costs for both privatization and maintenance and operating alternatives has not yet been performed for this project. Cost estimates (unburdened), based on the funding profile reported in this document, are presented in Table B-1.

**Table B-1**  
**Current Non-Privatized Baseline Costs of Project #1 (Case 5)**  
(in Millions)

FY		98	99	00	01	02	03	04	05	06	07
\$			3.6	3.6							

### Data Confidence

Detailed cost estimates have not been prepared for this project. Data confidence is therefore rated at medium.

## **B. 2 Rocky Flats Candidate Privatization Project #2 Transuranic (TRU) and Transuranic Mixed (TRM) Waste Storage Facility**

### Background

As activities at RFETS advance the Site toward closure, waste will continue to be generated. Residue processing and D&D activities will generate significant volumes of TRU/TRM and LL/LLM wastes, which will need to be temporarily stored onsite and staged for shipment offsite. Use of existing buildings for this activity is uneconomical and impractical due to the high mortgage costs of candidate buildings and their general unsuitability for this purpose.

### Project Scope

A 25,000 square foot TRU/TRM waste staging facility is planned to provide staging space. Its modular configuration would support the possibility of future expansion. The structure would be of a Butler Building type construction, with a concrete slab on grade. There would be a TRUPACT loading facility with a high bay area and overhead crane, similar to that currently located in Building 664. In addition, there would be a dock with appropriate shipping and staging areas. Personnel areas (e.g., office, break room, bathroom, lockers) and appropriate ventilation areas would also be designed into the facility.

The facility control limits of 200 grams Pu per drum and 320 grams Pu per crate would also allow low-level waste to be staged and handled in the building, if necessary.

### Basis for Selection

TRU and TRM wastes are currently stored in numerous locations throughout the Site. Drums are stored in material access areas (MAAs) that are often inaccessible due to frequent closures associated with (usually false) alarms and drills throughout much of the surrounding work area. Identical waste item description codes (IDCs) are not necessarily stored in one location. As a result of these factors, drum movement, monitoring, and inventorying activities are much more expensive than they would be if the waste were stored in a separate, open facility. This facility would not only reduce handling, and surveillance and maintenance costs associated with the waste, but it would also contribute significantly to the clearing of buildings so that they can undergo D&D. This, in turn, would accelerate risk reduction and reduce mortgage costs associated with continued operation of these buildings.

### Projected Costs

A detailed economic analysis, comparing life-cycle costs for both privatization and maintenance and operating alternatives has not yet been performed for this project. Cost estimates (unburdened), based on the funding profile reported in this Discussion Draft, are presented in Table B-2.



**Table B-2**  
**Current Non-Privatized Baseline Costs of Project #2 (Case 5)**  
(in Millions)

FY	98	99	00	01	02	03	04	05	06	07
\$		3.6								

Data Confidence

Detailed cost estimates have not been prepared for this project. Data confidence is therefore rated at medium.

**B.3 Rocky Flats Candidate Privatization Project #3**  
**Groundwater Management Project**

Background

There are volatile organic compound (VOC) contaminated groundwater plumes at RFETS that have the potential to impact surface water or to migrate offsite. Groundwater from the industrial area of the Site cannot penetrate the local geologic strata to any great depth due to the presence of a layer of clay under the Site. Fortunately, this clay layer outcrops at the east edge of the industrial area, so the groundwater that has percolated through the industrial zone seeps at the outcrop location and is naturally made available for collection and treatment at that point.

Project Scope

The objective of this project is to collect and treat contaminated groundwater plumes to reduce the impact to surface water according to RFCA. There are currently four plumes onsite which require management: the Mound Plume, the 903 Pad plume, Ryan's Pit Plume, and the East Trenches Plumes. The plumes are contaminated with chlorinated organics and some radionuclides and metals. Currently, the Site is investigating a passive technology to collect and treat the contaminated groundwater from the Mound Plume. If successful, installation of a collection and treatment system could occur in calendar year 1997.

Due to the nature of the contamination, these plumes will require long-term management consisting of collection and treatment to prevent further migration and adverse impacts to surface water flowing from the Site. The scope of this project is to design, construct, and operate a passive groundwater management system, similar to that used for the Mound Plume, the 903 Pad and Ryan's Pit, and the East Trenches Plumes.

The nature of this project is to construct collection systems at appropriate locations to collect the contaminated groundwater for treatment. The groundwater may be treated by one of at least two technologies; an active air stripper system or a passive system, that uses iron fillings. The treatment could occur in situ, above ground near the collection system; or the water might be collected and transferred to a nearby treatment facility.

### Description of the Privatization Approach

A private vendor selected by competitive procurement is awarded a fixed price contract for design and construction of a collection and treatment system. The vendor obtains and invests private financing to accomplish these activities. The vendor is paid a firm fixed price for design and construction, and then a fixed rate for operations as the groundwater is collected and treated. Since the amount of groundwater that will be collected can only be estimated, a contract would probably be written in terms of treating all of the water that is collected during a specified time period. The method or methods of treatment, and the details of the facilities that would be built, would be part of the competitive procurement.

At the time of contract signing, DOE would obligate sufficient funds to cover the cost of the contract and to pay contract termination costs to the vendor in the event that DOE terminates for convenience.

### Basis for Selection

The overall strategy of this project is to manage contaminated groundwater plumes in a passive manner, which will reduce long term maintenance and operating costs. These plumes are currently listed on the Environmental Priority List requiring remediation according to RFCA. Such management should prevent further migration of the plumes to the east of the Site and into the surface water bodies north and south of the Site. This project is a good candidate for privatization, because the scope of the work can be accurately defined and because it can be performed on a fixed unit rate basis.

### Projected Costs

A detailed economic analysis comparing life-cycle costs for both privatization and maintenance and operating alternatives has not yet been performed for this project. Cost estimates based on preliminary estimates are presented in Table B-3.

**Table B-3**  
**Current Non-Privatized Baseline Costs of Project #3 (Case 5)**  
( in Millions)

FY	98	99	00	01	02	03	04	05	06	07
\$		0.3	1.2							

It must be emphasized that these costs are preliminary estimates and do not include the cost of operation or the expenses associated with waste handling, packaging, storage, treatment, and disposal. If this project is approved, and if budget authority is available in FY98, the project could be awarded in FY2000.

### Data Confidence

Detailed cost estimates have not been prepared for this project. Data confidence is therefore rated at medium.

#### **B.4 Rocky Flats Candidate Privatization Project #4 Size Reduction and Decontamination Facility**

##### **Background**

D&D of RFETS nuclear production buildings will require handling and packaging of a large volume of contaminated process equipment, particularly gloveboxes. It is also highly desirable to accomplish as much decontamination of this equipment as possible, while concentrating the contaminants in a form more amenable to processing and disposal. A specialized size reduction and decontamination facility is therefore necessary to accomplish these tasks.

##### **Project Scope**

The scope of this project involves the D&D of every nuclear production building at the Site. Although size reduction and compaction equipment already exists in Building 776, this equipment would require repair and upgrading at a projected cost of about \$4 million. Also, since this equipment was designed to support handling of production related waste and never intended to accommodate site-wide D&D, it is not particularly well suited to future requirements. Since these facilities are located in Building 776, they could not be used to accomplish the final stages of size reduction and decontamination of that building. Significant efficiency and economy could be realized if a size reduction and contamination facility were modular and external to any building shell. A facility built adjoining 776 could accommodate waste from 776, 777, 707, 771, and 774 by transit through other buildings and through the tunnel to 771/774, avoiding contamination hazards associated with transporting waste outside of building containment. The facility might be modular and eventually moved to accomplish D&D of Building 371, or a separate facility might be built for that purpose. Such details would be required as part of the contractor's proposal.

Private industry has experience building and operating decontamination and size reduction facilities, including the handling of transuranic waste, and RFETS could take advantage of this experience and capabilities. Modular equipment, containing essential air locks, lighting, ventilation, HEPA filtration and life support equipment for decontamination operations involving encapsulated suits has been built and used to decommission nuclear facilities. System designs have included a decontamination cell, a high capacity shear/baler, decontamination technologies such as ultra high pressure water jets and cryogenic solid blasting, an active-passive non-destructive assay system, data acquisition systems for bar-code tracking of materials, and associated nuclear criticality and material controls. Decontamination can be accomplished primarily by high pressure water jets, with the water processed to remove and collect contaminants as it is re-circulated.

##### **Description of the Privatization Approach**

A private vendor, selected by competitive procurement, is awarded a fixed price contract for design and construction of a collection and treatment system. The vendor obtains and invests private financing to accomplish these activities, and is paid a firm, fixed price for design and construction and then a fixed rate for operations. The method or methods of operation, and the details of the facilities which would be built, would be part of the competitive procurement. At the time of contract signing, DOE would obligate sufficient funds to cover the cost of the contract and to pay termination costs to the vendor in the event that DOE terminates for convenience.

##### **Basis for Selection**

The objective is to have a capable, flexible, turn-key system for decontamination and size reduction. The vendor should have successfully demonstrated their proposed technology and facilities at other sites. The vendor must also be prepared to operate and maintain the system, and to remove the facilities when RFETS D&D and waste processing is completed. This project is good candidate for privatization because the scope of work is well defined and because operation could be performed on a fixed unit rate basis.

### **Projected Costs**

A detailed economic analysis comparing life cycle costs for both privatization and M&I alternatives has not yet been performed for this project. Cost estimates for the privatized option, based on preliminary estimates are presented in Table B-3.

**Table B-4**  
**Estimate of Privatized Baseline Costs (Capital Construction Only) of Project #4**  
(in Millions)

<b>FY</b>	<b>98</b>	<b>99</b>	<b>00</b>	<b>01</b>	<b>02</b>
<b>\$</b>		<b>\$5</b>			

It must be emphasized that these costs are preliminary estimates and do not include the costs of financing, Site burdening of the contract, facility operation, or expenses associated with waste packaging, storage, treatment, and disposal. If this project is approved, and if budget authority is available in FY98, the project could be awarded in FY99.

### **Data Confidence**

Detailed cost estimates have not been developed for this project. Data confidence is therefore rated at medium.

## **ATTACHMENT D**

### **BEMR and CLEANUP PLAN COMPARISON**

This attachment will be submitted at a later date.

## **ATTACHMENT E**

### **Rocky Flats Field Office Business Plan**

The contracting philosophy at Rocky Flats utilizes a combination of mechanisms to most efficiently accomplish the Site goals. These mechanisms include an Integrated Management Contract (IMC) as the primary vehicle, other direct contracts to DOE, grants, and utilization of the Site's federal work force to direct and assess Site work.

The Rocky Flats IMC was awarded to Kaiser-Hill, LLC, in July of 1995. The Rocky Flats Field Office plans to continue the strategy of using an IMC to complete cleanup and close the Site. This contract type will allow the Site to satisfy the need for a continuously fluctuating work force in response to changing priorities and task-specific requirements. Since the IMC is a performance-based contract, DOE will define the desired performance through the Project Baseline Summaries, the transmittal of Project Execution Guidance, the setting of a baseline in Work Authorization Documents, and the negotiation of performance measures. This will provide an opportunity for DOE to guide the work at the Site in a predictable way to achieve measurable results.

There will also be opportunities to utilize small direct contracts, reimbursable agreements with other federal entities, and other limited contractual instruments to accomplish Site work. These opportunities will be evaluated on a case-by-case basis to determine whether they contribute to Site closure by providing efficiencies and cost savings, or have other advantages over including them in the scope of work for the IMC.

Single-source funding from DOE Headquarters (Environmental Restoration) will provide many opportunities to realize efficiencies and eliminate constraints relative to performing the work at Rocky Flats. Receiving funding from a single source is expected to enhance the Site's ability to prioritize essential work in order to reduce baseline costs rapidly and accomplish Site closure.